Vascular Flora of the Fort Whyte Centre, Winnipeg, Manitoba: 2002 - 2004

By Geoff Jones

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Geoff Jones
Habitat Management and Ecosystem Monitoring Section
Wildlife and Ecosystem Protection Branch
Manitoba Conservation

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ABSTRACT

The Fort Whyte Centre for Environmental Education is situated in the southwest quadrant of Winnipeg, Manitoba. The Centre is home to a variety of habitats including aspen forest and willow stands, grassland areas, and a series of small lakes and wetlands reclaimed from an open-pit clay mine and cement factory that use to operate on the site. A vascular plant survey of the Centre property was conducted during the 2002 – 2004 growing seasons. A total of 377 species, subspecies, and varieties of vascular plants, representing 67 different plant families, were identified over the course of the survey. A complete list of the species observed and a map showing major habitat types at the Centre are included in this report.

Jones, G. 2005. *Vascular flora of the Fort Whyte Centre, Winnipeg, Manitoba: 2002 – 2004.* Section de l'aménagement de l'habitat et de la surveillance des écosystèmes, Direction de la protection de la faune et des écosystèmes, Conservation Manitoba. Rapport n° 2005-02, Winnipeg (Manitoba). 37 pp.

RÉSUMÉ

Le Fort Whyte Centre for Environmental Education est situé dans la partie sud-ouest de la ville de Winnipeg, au Manitoba. Dans le Centre se trouvent divers habitats, dont des forêts de trembles et de saules, des prairies et une série de petits lacs et de marécages reconquis sur le site d'une mine d'argile à ciel ouvert et d'une usine de ciment autrefois exploitées sur les lieux. Une enquête sur les plantes vasculaires du Centre a été effectuée pendant les saisons de croissance de 2002, 2003 et 2004. À l'issue de cette enquête un total de 377 espèces, sous-espèces et variétés de plantes vasculaires, représentant 67 familles différentes, avaient été identifiées. Le présent rapport contient une liste complète des espèces notées ainsi qu'une carte illustrant les grands types d'habitat qu'abrite le Centre.

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INTRODUCTION

The Fort Whyte Centre for Environmental Education is situated on approximately 250 ha of land in the southwest quadrant of Winnipeg, Manitoba (Figure 1). A large portion of the Centre consists of aspen forest stands and a series of small lakes and wetlands reclaimed from an open-pit clay mine and cement factory that operated on the site in the past. The remaining land area, which was acquired more recently, is occupied by brown fields, restored grassland, cultivated fields, and garden plots. The Centre was established over 30 years ago with the goal of providing programming, natural habitats, and facilities for environmental education and outdoor recreation. The Centre is open to the public on a year round basis and offers curriculum-based education programs to over 35,000 school students annually.

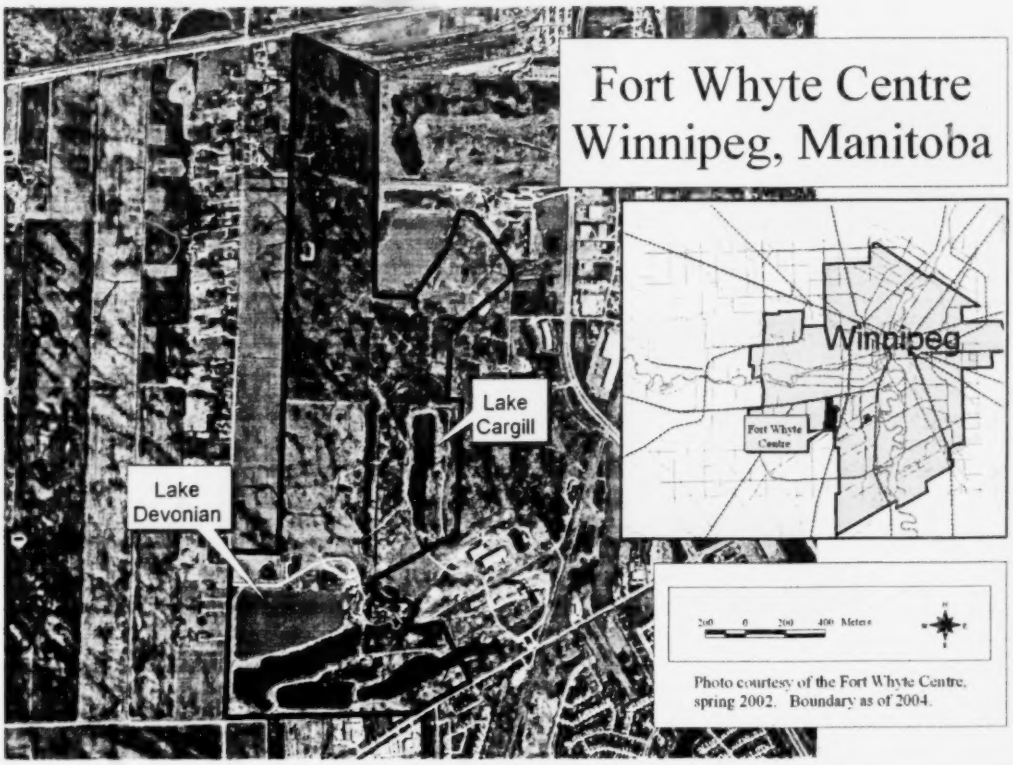

Figure 1. Aerial view of the Fort Whyte Centre, Winnipeg, Manitoba.

The Habitat Management and Ecosystem Monitoring Section of the Wildlife and Ecosystem Protection Branch, Manitoba Conservation, has been involved in a number of soil and vegetation monitoring activities at the Fort Whyte Centre since spring 2001. These activities have included establishing long-term vegetation and soil monitoring sites within an existing aspen stand and wetland habitat and assessing soil for re-vegetation potential in a parcel of land that was recently acquired from Lafarge Canada (a cement manufacturing facility located directly east of the Centre). The Section has also been involved in conducting a vascular plant survey of the Centre property. The survey field work began in early summer 2002 and concluded in the fall of 2004. This report will present the results of the vascular plant survey.

VASCULAR PLANT SURVEY METHODS

The main objective of this survey was to locate and identify vascular plant species that occur within the boundaries of the Fort Whyte Centre property. As such, the methodology used was a qualitative survey, rather than a quantitative investigation. The first step in conducting the survey involved compiling an initial list of species for the area. This included species identified by the Section during sampling of the Lake Cargill shoreline and the aspen stand and wetland monitoring sites in 2001, as well as species compiled previously by the Centre during cursory surveys conducted in 1981 and 1990-1995. *Arcview GIS* (ver. 3.3) was then employed to generate a detailed map of the Centre property using aerial photographs, line maps and diagrams, and the author's own familiarity with the area. The map included a preliminary delineation of the property into 68 separate survey units based on dominant vegetation, water regime, land use, and level of disturbance. This included different aged aspen stands, a number of areas that have recovered in varying degrees from past disturbance and development, several different types of wetland habitats (e.g. lakes, marshes, flooded forest, old road beds, and drainage ditches), grasslands, and cultivated fields and garden plots. The map was created to help aid in conducting the field work component of the survey as well as to fulfill a secondary objective of identifying and delineating the general habitat types or vegetation cover classes at the Centre.

Field work began in early summer 2002 and ended in fall 2004. Although a significant portion of the property was covered during the 2002 and 2003 field seasons, the majority of the area was surveyed during the 2004 season (Figure 2). Field work involved walking through each survey unit along a transect line and recording the plant species present. Transect lines were established with the aid of maps, aerial photographs, and a geographic positioning system meter (GPS). The transect line was used for general guidance only, and deviation away from the line was common. Several transect lines were used in survey units where species richness was potentially high, such as large aspen stands and disturbed areas. Transect lines were positioned to reflect the spatial characteristics of the survey unit. For example, survey units that were long and narrow in shape, such as the wetlands associated with old road beds, had transects oriented along their entire length, rather than across their width.

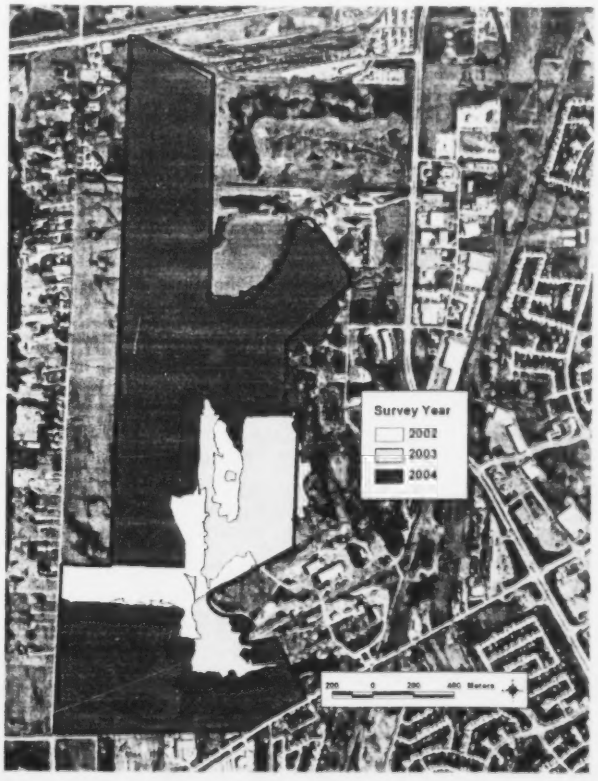

Figure 2. Map showing the area of the Fort Whyte Centre surveyed during the 2002, 2003, and 2004 field seasons.

Each of the 68 survey units was visited at least twice over the growing season in order to better capture plant flowering and fruiting stages and thus aid in the identification of species. Plants were identified to the species level, and in some cases to the subspecies and variety level. If a plant was unidentifiable in the field, a specimen was collected for later identification using a stereo dissecting microscope. Several floral keys were used in identification, including Gleason (1952), Cronquist (1955), Scoggan (1957, 1978), Hitchcock and Cronquist (1961, 1964), Hitchcock *et al.* (1959, 1969), Boivin (1967-1968, 1972, 1979), Looman and Best (1979), Voss (1972, 1996), and Argus (2004). Numerous internet resources, most notably the PLANTS Database (USDA/NRCS 2004), Wisflora (Wisconsin State Herbarium 2004), and Midwestern Wetland Flora (NPWRC 2004), were consulted for additional information to help in species identification (e.g. photographs, line drawings, descriptions, and distribution maps). The nomenclature used in this report follows Kartesz (1994). Most of the common names used were obtained from Scoggan (1957, 1978), Looman and Best (1979), and USDA/NRCS (2004). An effort was made to use local vernacular for common names.

RESULTS

A total of 377 different species of vascular plant (includes 24 keyed to subspecies and 34 keyed to variety level), representing 67 separate plant families, were identified over the course of the survey. The aster or composite family (Asteraceae) was represented by 67 species, followed by the grasses (Poaceae) with 41 species, the sedge family (Cyperaceae) with 22 species, the rose and bean families (Rosaceae and Fabaceae, respectively) with 20 species each, and the willow family (Salicaceae) with 18 species (Table 1). Together these six families accounted for 50% of the species identified at the Centre.

Table 1. Plant families and number of species identified at the Fort Whyte Centre, Winnipeg, Manitoba (2002 –2004).

Family	Species	Family	Species	Family	Species
Asteraceae	67	Oleaceae	3	Anacardiaceae	1
Poaceae	41	Papaveraceae	3	Araliaceae	1
Cyperaceae	22	Pinaceae	3	Convolvulaceae	1
Fabaceae	20	Santalaceae	3	Cornaceae	1
Rosaceae	20	Scrophulariaceae	3	Cucurbitaceae	1
Salicaceae	18	Violaceae	3	Fagaceae	1
Polygonaceae	14	Apocynaceae	2	Gentianaceae	1
Brassicaceae	13	Betulaceae	2	Haloragaceae	1
Lamiaceae	13	Boraginaceae	2	Hydrocharitaceae	1
Ranunculaceae	12	Campanulaceae	2	Hydrophyllaceae	1
Apiaceae	8	Elaeagnaceae	2	Iridaceae	1
Chenopodiaceae	8	Euphorbiaceae	2	Lentibulariaceae	1
Juncaceae	8	Lemnaceae	2	Malvaceae	1
Caprifoliaceae	7	Linaceae	2	Plantaginaceae	1
Equisetaceae	5	Orchidaceae	2	Polemoniaceae	1
Liliaceae	5	Primulaceae	2	Portulacaceae	1
Asclepiadaceae	4	Rubiaceae	2	Pyrolaceae	1
Caryophyllaceae	4	Solanaceae	2	Rhamnaceae	1
Grossulariaceae	4	Typhaceae	2	Smilacaceae	1
Onagraceae	4	Ulmaceae	2	Tiliaceae	1
Potamogetonaceae	4	Aceraceae	1	Urticaceae	1
Alismataceae	3	Amaranthaceae	1	Vitaceae	1
Geraniaceae	3				

Table 2 lists the species identified during this survey. The Table also indicates the total number of survey units in which the species was observed and whether or not the species is introduced or native to Manitoba. The list in Table 2 is arranged alphabetically by family, and then by genus and species within each family. As indicated previously, nomenclature in this report follows Kartesz (1994). Common synonyms are provided in cases where Kartesz (1994) differs from older, but still widely used references. An asterisk next to a species name indicates herbarium specimens were collected for the species.

The species list, without the synonyms and common names, but including the specific survey units in which each species was observed, is also provided in the Appendix section of this report.

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Aceraceae	Acer negundo L.		Manitoba maple		12
Alismataceae	Alisma gramineum Lej.		grass-leaved water-plantain		1
	Alisma triviale Pursh		water-plantain		6
	Sagittaria latifolia Willd.		arrowhead		1
Amaranthaceae	* Amaranthus retroflexus L.		pigweed, green amaranth	1	6
Anacardiaceae	Toxicodendron radicans (L.) Kuntze ssp. radicans	Rhus radicans L.	poison ivy		12
Apiaceae (syn. Umbelliferae)	* Anethum graveolens L.		dill	1	1
	Cicuta maculata L.		water hemlock		6
	* Coriandrum sativum L.		coriander	1	1
	Daucus carota L.		carrot	1	1
	Sanicula marilandica L.		snakeroot		8
	* Sium suave Walt.		water-parsnip		8
	Zizia aptera (Gray) Fern.		heart-leaf alexander		4
	* Zizia aurea (L.) W.D.J. Koch		golden alexander		9
Apocynaceae	Apocynum androsaemifolium L.		spreading dogbane		8
	* Apocynum cannabinum L.	Apocynum sibiricum Jacq.	indian hemp		21
Araliaceae	Aralia nudicaulis L.		wild sarsaperilla		2
Asclepiadaceae	Asclepias sp. L.		milkweed		2
	Asclepias incarnata L.		swamp-milkweed		3
	* Asclepias ovalifolia Dene.		oval-leaved milkweed		3
	Asclepias speciosa Torr.		showy-milkweed		17
Asteraceae (syn. Compositae)	Achillea millefolium L.		yarrow	1	13
	* Agoseris glauca (Pursh.) Raf.		large flowered false dandelion		1
	* Ambrosia artemisifolia L. var. elatior (L.) Descourtilis		common ragweed, annual ragweed		3
	* Ambrosia trifida L.		buffalo-weed, great ragweed		4
	* Antennaria parvifolia Nutt.		low everlasting		1
	* Arctium minus Bernh.		common burdock	1	5
	Arnica cordifolia Hook.		heart-shaped arnica	1	2
	* Artemisia absinthium L.		absinthe, wormwood	1	6
	* Artemisia biennis Willd.		biennial wormwood		17
	* Artemisia frigida Willd.		prairie sagewort		16
	* Artemisia ludoviciana Nutt. ssp. ludoviciana	Artemisia ludoviciana Nutt. spp. gnaphalodes (Nutt.) Torr. & Gray	white prairie-sage		8
	Artemisia vulgaris L.		common mugwort	1	5
	* Aster ciliolatus Lindl.		Lindley's aster		5
	* Aster ericoides L. var. pansus (Blake) Boivin	Aster pansus (Blake) Cronq.	prairie aster		27
	* Aster laevis L.		smooth blue aster		13
	* Aster lanceolatus Willd. ssp. lanceolatus var. lanceolatus	Aster simplex Willd.	panicled aster		36
	Bidens cernua L.		beggar-ticks		4
	* Bidens frondosa L.		beggar-ticks		1
	* Bidens vulgata Greene		beggar-ticks		5
	* Brachyactis ciliata (Ledeb.) Ledeb. ssp. angusta (Lindl.) A. G. Jones	Aster brachyactis Blacke	rayless aster		12
	* Centaurea cyanus L.		bachelor's buttons	1	2
	* Cirsium arvense (L.) Scop.	Includes var mite (Rand & Redf.) Hoffm.	Canada thistle	1	54
	Cirsium drummondii Torr. & Gray		short-stemmed thistle		1
	* Cirsium flodmanii (Rydb.) Arthur		Flodman's thistle		13
	* Conyza canadensis (L.) Cronq. var. canadensis	Erigeron canadensis L.	Canada horseweed		9

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Asteraceae	* Coreopsis tinctoria Nutt.		common tickseed		1
(syn. Compositae)	* Crepis tectorum L.		hawk's-beard	1	5
(continued)	* Dracopis amplexicaulis (Vahl.) Cass.	Rudbeckia amplexicaulis Vahl.	clasping coneflower	1	1
	Echinacea purpurea (L.) Moench		purple coneflower		1
	* Erigeron glabellus Nutt.		smooth fleabane		5
	* Erigeron philadelphicus L.		Philadelphia fleabane		25
	* Erigeron strigosus Muhl. ex Willd.		daisy fleabane		2
	Eupatorium maculatum L. var. bruneri (Grey) Breitung		joepyeweed		1
	* Euthamia graminifolia (L.) Nutt.	Solidago graminifolia (L.) Salisb. var. major (Michx.) Fern.	grass-leaved golden-rod		8
	Gaillardia aristata Pursh		gaillardia		2
	* Grindelia squarrosa (Pursh) Dunal		curly cup gumweed		13
	* Helianthus maximiliani Schrad.		Maximillian's sunflower		22
	* Helianthus pauciflorus Nutt. ssp. subrhomboideus (Rydb.) O. Spring & E. Schilling	Helianthus laetiflorus Pers. var. rubrhomboideus (Rydb.) Fern.	showy sunflower		3
	* Helianthus petiolaris Nutt.		prairie sunflower		1
	* Hieraceum umbellatum L.		hawkweed		4
	* Iva xanthifolia Nutt.		marsh-elder, sumpweed		6
	* Lactuca serriola L.	Lactuca scariola L.	prickly-lettuce	1	8
	* Lactuca tatarica (L.) C. A. Mey var. pulchella (Pursh) Breitung	Lactuca pulchella (Pursh) DC.	blue lettuce		4
	Leucanthemum vulgare Lam.	Chrysanthemum leucanthemum L.	ox-eye daisy	1	1
	* Liatris ligulistylis (A. Nels.) K. Schum.		blazing-star		3
	* Matricaria discoidea DC	Matricaria matricarioides L.	pineapple-weed		3
	* Matricaria perforata Merat	Matricaria maritima L. var. agrestis (Knof.) Wilmott.	scentless chamomile	1	6
	Petasites sagittatus (Banks ex Pursh) Gray		arrow-leaved coltsfoot		19
	* Ratibida columnifera (Nutt.) Woot. & Standl.		prairie coneflower		2
	Rudbeckia hirta L. var. pulcherrima Farw.	Rudbeckia serotina Nutt.	black-eyed Susan		1
	Rudbeckia laciniata L.		green coneflower, cutleaf coneflower		1
	* Senecio pauperculus Michx.		groundsel, ragwort		8
	* Senecio viscosus L.		sticky groundsel	1	3
	* Senecio vulgaris L.		common groundsel	1	1
	Solidago spp. L.		goldenrod		3
	* Solidago canadensis L.		Canada goldenrod		12
	* Solidago canadensis L. var. gilvocanescens Rydb.		Canada goldenrod, canescent goldenrod		17
	* Solidago gigantea Ait.	Solidago gigantea Ait. var. leiophylla Fern.	giant goldenrod		32
	* Solidago missouriensis Nutt.		Missouri goldenrod		1
	* Solidago nemoralis Ait. var. longipetiolata (Mack. & Bush) Palmer & Steyermark	Solidago nemoralis Ait. var. decemflora (DC) Fern.	showy goldenrod, grey goldenrod		4
	* Solidago rigida L.		stiff goldenrod		15
	* Sonchus arvensis L. ssp. uliginosus (Bieb.) Nyman		field sow-thistle	1	47
	* Sonchus asper (L.) Hill		spiny-leaved sow-thistle	1	10
	Tanacetum vulgare L.		common tansy	1	1
	Taraxacum officinale G. H. Weber ex Wiggers		common dandelion	1	37
	Tragopon dubius Scop.		goat's-beard	1	7
	* Xanthium strumarium L.		cockle-bur		13

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Betulaceae	Alnus incana (L.) Moench ssp. rugosa (Du Roi) Clausen	Alnus rugosa (Du Roi) Spreng var. americana (Regel) Fern.	speckled alder		5
	* Corylus cornuta Marsh.		beaked hazelnut		9
Boraginaceae	* Lappula squarrosa (Retz.) Dumort.	Lappula echinata Gilib.	stickseed	1	2
	Mertensia paniculata (Ait.) G. Don		lungwort		1
Brassicaceae	* Brassica napus L.		canola, rape	1	1
(syn. Cruciferae)	* Brassica rapa L.	Brassica campestris L.	field mustard	1	3
	* Capsella bursa-pastoris (L.) Medik.		shepherd's purse	1	9
	* Descurainia sophia (L.) Webb. ex Prantl		tansy-mustard	1	3
	* Erysium asperum (Nutt.) DC		western wallflower, prairie		1
	* Erysium cheiranthoides L.		wormseed mustard, treacle	1	1
	* Erysium inconspicuum (S. Wats.) MacM.		treacle mustard		1
	* Hesperis matronalis L.		dame's violet	1	2
	* Lepidium densiflorum Schrad.		peppergrass		4
	* Raphanus sativus L.		radish	1	1
	* Rorippa palustris (L.) Bess. ssp. fernaldiana (Butters & Abbe) Jonesell	Rorippa islandica (Oeder) Borbas var. fernaldiana (Butte. & Abbe)	yellow-cress		9
	* Sinapis arvensis L.	Brassica kaber (DC) L. C. Wheeler	wild mustard	1	8
	* Thlaspi arvense L.		field penny-cress	1	15
Campanulaceae	* Campanula rapunculoides L.		bluebell	1	5
	* Lobelia kalmii L.		Kalm's lobelia		3
Caprifoliaceae	Lonicera dioica L. var. glaucescens (Rydb.) Butters	Lonicera glaucescens (Rydb.) Rydb.	twining honeysuckle		1
	* Lonicera tatarica L.		tatarian honeysuckle	1	3
	Symphoricarpos albus (L.) Blake		snowberry		6
	* Symphoricarpos occidentalis Hook.		western snowberry		35
	* Viburnum lentago L.		nanny berry		3
	* Viburnum opulus L. var. americanum Ait.	Viburnum trilobum Marsh.	high-bush cranberry		4
	* Viburnum rafinesquianum J. A. Schultes		downy arrow-wood		7
Caryophyllaceae	Gypsophila paniculata L.		baby's-breath	1	1
	Moehringia lateriflora (L.) Fenzl.	Arenaria lateriflora L.	grove sandwort		3
	* Silene noctiflora L.		night-flowering catchfly	1	4
	* Silene vulgaris (Moench) Garcke	Silene cucubalus Wibbel	bladder campion	1	3
Chenopodiaceae	* Atriplex patula L.		orach		3
	* Atriplex prostrata Boucher ex DC	Atriplex patula var. hastata (L.) Gray	orach, triangle orache		1
	* Chenopodium album L.		lamb's-quarters	1	12
	* Chenopodium rubrum L.		strawberry-blite		2
	* Chenopodium salinum Standl.	Chenopodium glaucum L. var. salinum (Standl.) Boivin	oak-leaved goosefoot	1	7
	* Chenopodium simplex (Torr.) Raf.	Chenopodium hybridum L. var. gigantospermum (Allen) Rouleau	maple-leaved goosefoot		3
	* Kochia scoparia (L.) Schrad.		Mexican-fireweed, summer	1	3
	* Suaeda calceoliformis (Hook.) Moq.	Suaeda depressa (Pursh) Wats.	sea-blite		2
Convolvulaceae	Calystegia sepium (L.) R. Br. ssp. sepium	Convolvulus sepium L.	wild morning-glory		4

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Cornaceae	Cornus sericea L. ssp. sericea	Cornus stolonifera Michx.	red-osier dogwood		28
Cucurbitaceae	* Cucumis sativus L.		cucumber	1	1
Cyperaceae	Carex spp. L.		sedge		3
	* Carex aquatilis Wahlenb.		water sedge		5
	* Carex atherodes Spreng.		wheat sedge		8
	* Carex aurea Nutt.		golden sedge		3
	* Carex deweyana Schwein.		Dewey's sedge		1
	Carex diandra Shrank		sedge		2
	* Carex lanuginosa Michx.		wooly sedge		11
	* Carex lasiocarpa Fern. var. americana Fern.		American woolyfruit sedge, hairy fruited sedge		13
	Carex lenticularis Michx.		sedge		2
	* Carex praegracilis W. Boott		graceful sedge		2
	* Carex praticola Rydb.		meadow sedge		2
	* Carex rostrata Stokes		beaked sedge		2
	* Carex sartwellii Dewey		Sartwell's sedge		8
	* Carex tenera Dewey		quill sedge, broad-fruited sedge		6
	* Carex vulpinoidea Michx.		fox sedge		3
	* Eleocharis sp. R. Br.		spike-rush		1
	* Eleocharis engelmannii Steud.		Engelman's rush		1
	* Eleocharis palustris (L.) Roemer & J. A. Schultes		spike-rush		20
	* Eriophorum angustifolium Honckeny		cotton-grass		1
	* Scirpus acutus Muhl. ex Bigelow	Scirpus lacustris L.	soft-stem bulrush		9
	* Scirpus maritimus L.	Scirpus paludosus Nels.	alkali bulrush, salt-marsh bulrush, bayonet grass		9
	* Scirpus tabernaemontani K. C. Gmel.	Scirpus validus Vahl.	soft-stem bulrush		4
Elaeagnaceae	* Elaeagnus angustifolia L.		Russian olive	1	12
	* Shepherdia argentea (Pursh) Nutt.		buffalo-berry		3
Equisetaceae	* Equisetum arvense L.		field-horsetail		6
	Equisetum hyemale L.		scouring-rush		2
	* Equisetum palustre L.		marsh-horsetail		2
	* Equisetum pratense Ehrh.		meadow horsetail		10
	Equisetum sylvaticum L.		wood horsetail		4
Euphorbiaceae	* Chamaesyce serpyllifolia (Pers.) Small var. serpyllifolia	Euphorbia serpyllifolia Pers.	spurge		2
	* Euphorbia marginata Pursh		snow on the mountain	1	1
Fabaceae	* Astragalus adsurgens Pallas var. robustior Hook.	Astragalus striatus Nutt.	prairie milk-vetch		6
(syn. Leguminosae)	* Astragalus agrestis Dougl. ex G. Don	Astragalus goniatus Nutt.	purple milk-vetch		5
	* Astragalus canadensis L.		Canada milk-vetch		1
	Caragana aborescens Lam.		caragana	1	3
	* Dalea purpurea Vent. var. purpurea	Petalostemon purpureus (Vent.) Rydb.	purple prairie-clover		1
	* Glycine max (L.) Merr.		soy bean	1	1
	Glycyrrhiza lepidota Pursh		wild-licorice		28
	* Lathyrus ochroleucus Hook.		pale peavine		4
	* Lathyrus palustris L.		wild pea, vetchling		13
	* Lathyrus venosus Muhl. ex Willd.		wild peavine		8
	* Lotus corniculatus L.		bird's-foot trefoil, prairie trefoil		20
	* Medicago lupulina L.		black medic	1	27
	Medicago sativa L.		alfalfa	1	32

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Fabaceae	* Melilotus officinalis (L.) Lam.		yellow/white sweet-clover	1	35
(syn. Leguminosae)	* Trifolium fragiferum L.		strawberry clover	1	2
(continued)	* Trifolium hybridum L.		alsike clover	1	21
	* Trifolium pratense L.		red clover	1	23
	Trifolium repens L.		white clover	1	5
	* Viccia americana Muhl. ex Willd.		American peavine, American		22
	* Viccia cracca L.		Canada peavine, vetch	1	26
Fagaceae	Quercus macrocarpa Michx.		bur-oak		13
Gentianaceae	Gentiana andrewsii Griseb.		closed gentian		6
Geraniaceae	* Erodium cicutarium (L.) L'Her. ex Ait.		storksbill	1	1
	* Geranium carolinianum L.		Carolina geranium		2
	* Geranium bicknellii Britt.		northern crane-bill, Bicknell's geranium		3
Grossulariaceae	* Ribes americana P. Mill.		wild black currant		2
	* Ribes hirtellum Michx.		gooseberry		3
	Ribes lacustre (Pers.) Poir.		currant		1
	Ribes oxyacanthoides L.		northern gooseberry		11
Haloragaceae	* Myriophyllum sibiricum Komarov	Myriophyllum exalbescens Fern.	water-milfoil		2
Hydrocharitaceae	* Elodea canadensis Michx.		Canadian waterweed		5
Hydrophyllaceae	* Phacelia campanularia Gray		desert bell	1	2
Iridaceae	* Sisyrinchium montanum Greene		blue-eyed grass		12
Juncaceae	* Juncus alpinoarticulatus Chaix	Juncus alpinus Vill.	northern green rush		1
	* Juncus ambiguus Guss.	Juncus bufonicus L. var. halophilus Buch. & Fern.	toad-rush		5
	* Juncus balticus Willd. var. littoralis Engelm.		Baltic rush		23
	* Juncus compressus Jacq.		round-fruited rush, flattened	1	6
	* Juncus dudleyi Wieg.		Dudley's rush		4
	* Juncus nodosus L.		jointed rush		1
	* Juncus torreyi Coville		Torrey's rush		2
	* Juncus tenuis Willd.		round-fruited rush		1
Lamiaceae	* Dracocephalum parviflorum Nutt.	Moldavica parviflora (Nutt.) Britt.	dragonhead		6
(syn. Labiatae)	* Galeopsis bifida Boenn.	Galeopsis terahit L. var. bifida (Boenn.) Lej. & Court.	common hemp-nettle	1	6
	* Lycopus americanus Muhl. ex Bart		water horehound		20
	* Lycopus asper Greene		water horehound		20
	* Leonurus cardiaca L.		common motherwort	1	1
	* Mentha canadensis L.	Mentha arvensis L. var. villosa (Benth.) Stewart	field mint		19
	* Monarda fistilosa L.		wild bergamot		3
	* Physostegia parviflora Nutt. ex Gray	Dracocephalum nuttallii Britt.	false dragonhead		1
	* Salvia reflexa Hornem.		sage		1
	* Scutellaria galericulata L.		skullcap		2
	* Stachys palustris L. ssp. pilosa (Nutt.) Epling	Stachys palustris L. var. pilosa (Nutt.) Fern.	hedge-nettle		12
	* Stachys tenuifolia Willd. var. tenuifolia	Stachys tenuifolia Willd. var. hispida (Pursh.) Fern.	hedge-nettle		3
	* Teucrium canadense L. var. occidentale (Gray) McClintock & Epling	Teucrium occidentale Gray	germander, wood-sage		4

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Lemnaceae	Lemna minor L.		duckweed		4
	Lemna trisulca L.		duckweed		1
Lentibulariaceae	* Utricularia macrorhiza Le Conte	Utricularia vulgaris L.	common bladderwort		1
Liliaceae	Asparagus officinalis L.		asparagus	1	1
	Lilium philadelphicum L.		tiger-lily, prairie-lily		2
	Maianthemum canadense Desf.		wild lily-of-the-valley		6
	Maianthemum stellatum (L.) Link	Smilacina stellata (L.) Desf.	false Solomon's seal		9
	Zigadenus elegans Pursh		white camas		1
Linaceae	* Linum catharticum L.		fairy flax	1	1
	Linum usitatissimum L.		common blue flax	1	5
Malvaceae	* Malva rotundifolia L.		mallow	1	2
Oleaceae	Fraxinus nigra Marsh.		black ash		1
	Fraxinus pennsylvanica Marsh.		green ash		10
	Syringa vulgaris L.		lilac	1	1
Onagraceae	* Epilobium ciliatum Raf. ssp. ciliatum	Epilobium glandulosum Lehm. var. adenocaulon (Haussk.) Fern.	fringed willow-herb		16
	* Epilobium leptophyllum Raf.		willow-herb		2
	* Epilobium palustre L.		marsh willow-heb		1
	Oenothera biennis L.		yellow evening-primrose		1
Orchidaceae	Cypripedium pubescens Willd.	Cypripedium calceolus L. var. pubescens (Willd.) Correll	yellow lady's-slipper		3
	Cypripedium reginae Walt.		showy lady's-slipper		1
Papaveraceae	* Chelidonium majus L.		celandime, swallow wort	1	1
	* Papaver rhoeas L.		corn poppy	1	1
	Papaver somniferum L.		blue poppy, common poppy	1	1
Pinaceae	* Larix occidentalis Nutt.		western larch	1	1
	Picea glauca (Moench) Voss		white spruce		9
	Picea pungens Engelm.		blue spruce	1	3
Plantaginaceae	Plantago major L.		common plantain	1	33
Poaceae	* Agropyron cristatum (L.) Gaertn.		crested wheatgrass	1	3
(syn. Gramineae)	* Agrostis gigantea Roth	Agrostis stolonifera L. var. major (Gaudin) Farw.	red-top bent grass		10
	* Agrostis scabra Willd.		hairgrass, ticklegrass		3
	* Alopecurus pratensis L.		meadow-foxtail	1	5
	* Andropogon gerardii Vitman		big bluestem		8
	* Avena fatua L.		wild oat	1	6
	* Beckmannia syzigachne (Steud.) Fern.		slough-grass		17
	* Bromus ciliatus L.		fringed brome		1
	* Bromus inermis Leyss.		brome-grass, smooth brome	1	36
	* Bromus inermis Leyss. ssp. pumpellianus (Scribn.) Wagnon var. pumpellianus (Scribn.) C. L. Hitchc.	Bromus pumpellianus Scribn.	Pumpelly's brome		5
	* Calamagrostis canadensis (Michx.) Boiv.		reed bent-grass		12

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Poaceae	* Calamagrostis stricta (Timm) Koel. ssp. inexpansa (Gray) C. W. Greene	Calamagrostis inexpansa Gray	northern reed grass		1
(syn. Gramineae)	* Calamagrostis stricta (Timm) Koel. ssp. stricta var. stricta (Ehrh.) P. G. Gaertin., B. Mey. & Shreb.	Calamagrostis neglecta (Ehrh.) P. G. Gaertin., B. Mey. & Shreb.	reed bent-grass		5
(continued)	* Echinochloa crusgalli (L.) Beauv.		barnyard-grass	1	12
	Elymus canadensis L.		Canada wild rye		2
	* Elymus trachycaulus (Link) Gould ex Skinner ssp. subsecundus (Link) A. & D. Love	Agropyron trachycaulum var. glaucum (Pease & Moore) Malte	slender wheat-grass		8
	* Elymus trachycaulus (Link) Gould ex Skinner ssp. trachycaulus	Agropyron trachycaulum (Link) Malte and includes var. novae-angliae (Scribn.) Fern.	slender wheat-grass		4
	* Elytrigia repens (L.) Desv. ex B.D. Jackson var. repens	Agropyron repens (L.) Beauv.	couch-grass, quack grass	1	33
	* Festuca ovina L.		sheep's fescue	1	5
	Glyceria grandis S. Wats.		manna grass		2
	* Hierochloe odorata (L.) Beauv.		sweet grass		4
	* Hordeum jubatum L.		wild barley		26
	* Lolium perenne L. ssp. multiflorum (Lam.) Husnot	Lolium multiflorum Lam.	Italian wild-rye	1	3
	* Muhlenbergia mexicana (L.) Trin.		plains muhly, Mexican muhly		2
	* Panicum virgatum L.		switch-grass		4
	* Pascopyrum smithii (Rydb.) A. Love	Agropyron smithii Rydb.	western wheatgrass		1
	* Phalaris arundinacea L.		reed canary-grass		24
	* Phleum pratense L.		timothy	1	18
	Phragmites australis (Cav.) Trin. ex Steud.	Phragmites communis Trin.	giant reed-grass		14
	* Poa annua L.		annual bluegrass	1	1
	* Poa arida Vasey	Poa glaucifolia Scribn. Will.	plains bluegrass		3
	* Poa compressa L.		wire-grass	1	2
	* Poa nemoralis L.		bluegrass		1
	* Poa palustris L.		fowl meadow-grass		14
	* Poa pratensis L.		Kentucky blue-grass		39
	* Puccinellia nuttalliana (J. A. Schultes) A. S. Hitchc.		alkali-grass		5
	* Schizachyrium scoparium (Michx.) Nash ssp. scoparium	Andropogon scoparius Michx.	little bluestem		1
	* Setaria glauca (L.) Beauv.		yellow fox-tail	1	5
	* Setaria viridis (L.) Beauv.		green fox-tail	1	6
	* Sorghastrum nutans (L.) Nash		Indian grass		2
	Spartina pectinata Link		cord-grass		28
Polemoniaceae	* Gilia capitata Sims		gilia	1	1
Polygonaceae	* Polygonum amphibium L. var. stipulaceum Coleman		water smartweed		12
	* Polygonum aviculare L.		prostrate knotweed	1	8
	* Polygonum convolvulus L.		bindweed	1	10
	* Polygonum erectum L.		erect knotweed		2
	* Polygonum lapathifolium L.		curly-top knotweed, willow-weed		7
	* Polygonum lapathifolium L. var. lapathifolium	Polygonum scabrum Moench	curly-top knotweed, willow-weed		2
	* Polygonum lapathifolium L. var. salicifolium Sibth.		curly-top knotweed, willow-weed		3
	* Polygonum pensylvanicum L.		smartweed		1

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Polygonaceae	Rumex aquaticus L. var. fenestratus (Greene) Dorn	Rumex occidentalis S. Wats.	western dock		12
(continued)	* Rumex crispus L.		curly dock, yellow dock	1	20
	Rumex maritimus L.		golden dock		2
	* Rumex patientia L.		patience-dock	1	1
	* Rumex salicifolius Weinm. var. mexicanus (Meisn.) C. L. Hitchc.	Rumex mexicanus Meisn.	narrow-leaved dock		4
	* Rumex stenophyllus Ledeb.		narrow-leaved dock	1	2
Portulacaceae	Portulaca oleracea L.		common purslane	1	2
Potamogetonaceae	* Potamogeton filiformis Pers. var. alpinus (Blytt) Aschers. & Graebn.	Potamogeton filiformis var. macounii Morong	fineleaf pondweed		6
	* Potamogeton pectinatus L.		sago pondweed		1
	* Potamogeton richardsonii (Benn.) Rydb.		Richardson's pondweed		3
	* Potamogeton vaginatus Turcz.		sheated pondweed		1
Primulaceae	Lysimachia ciliata L.	Steironema ciliatum (L.) Baudo	fringed loosestrife		2
	* Lysimachia thyrsiflora L.	Naumburgia thyrsiflora (L.) Duby	tufted loosestrife		5
Pyrolaceae	* Pyrola elliptica Nutt.		shinleaf, waxflower shinleaf		2
Ranunculaceae	* Actaea rubra (Ait.) Willd.		red baneberry		1
	Anemone canadensis L.		Canada anemone		25
	* Anemone cylindrica Gray		thimbleweed		4
	Anemone quinquefolia L.		wood anemone		1
	Aquilegia canadensis L.		Canada columbine		1
	* Consolida ajacis (L.) Schur	Delphinium ajacis L.	rocket larkspur	1	1
	* Ranunculus cymbalaria Pursh		seaside crowfoot		7
	* Ranunculus macounii Britt.		Macoun's buttercup		13
	* Ranunculus pensylvanicus L.f.		bristly crowfoot		2
	Ranunculus sceleratus L.		cursed crowfoot		5
	* Thalictrum dasycarpum Fisch. & Ave-Lall.		purple meadow-rue, tall meadow-rue		7
	Thalictrum venulosum Trel.		veiny meadow-rue		8
Rhamnaceae	Rhamnus alnifolia L'Her.		alder-leaved buckthorn		6
Rosaceae	Amelanchier alnifolia (Nutt). Nutt. ex M.Roemer		saskatoon		18
	* Argentina anserina (L.) Rydb.	Potentilla anserina L.	silverweed		31
	* Crataegus chrysocarpa Ashe	Crataegus rotundifolia Moench p.p. non Lamb.	hawthorn		10
	* Fragaria virginiana Duchesne		wild strawberry		10
	* Geum macrophyllum Willd. var. perincisum (Rydb.) Huhen	Geum macrophyllum Willd. spp. perincisum (Rydb.) Raup	large-leaved avens		1
	* Potentilla norvegica L.		cinquefoil		9
	* Potentilla paradoxa Nutt.		paradox cinquefoil		1
	* Potentilla rivalis Nutt. var. millegrana (Engelm. ex Lehm.) S. Wats.	Potentilla millegrana Engelm. ex Lehm.	brook cinquefoil		1
	Prunus americana Marsh.		wild plum		5
	* Prunus cerasifera Ehrh.		cherry plum	1	1
	* Prunus nigra Ait.		Canada plum		1
	* Prunus pensylvanica L. f.		pin-cherry		7
	* Prunus virginiana L.		choke-cherry		13
	Rosa acicularis Lindl.		prickly-rose		19
	* Rosa arkansana Porter		prairie rose		9
	* Rosa blanda Ait.		wild rose		2
	* Rosa woodsii Lindl.		Wood's rose		10
	Rubus idaeus L.		raspberry		3
	Rubus pubescens Raf.		raspberry		11
	Spiraea alba Du Roi		spiraea		9

Table 2. List of species identified at the Fort Whyte Centre (2002 – 2004) (continued).

Family	Species	Synonym	Common Name	Introduced	Survey Units
Rubiaceae	Galium boreale L.	Galium septentrionale Roemer & J.A. Schultes	northern bedstraw		19
	Galium trifidum L.		bedstraw		3
Salicaceae	* Populus alba L.		white poplar, silver poplar	1	2
	Populus balsamifera L.		balsam poplar		14
	Populus deltoides Bartr.ex Marsh.		cottonwood		19
	* Populus deltoides Bartr. ex Marsh. ssp. monilifera (Ait.) Eckenwalder	Populus sargentii Dode	plains cottonwood	1	3
	* Populus nigra L.		black poplar	1	1
	Populus tremuloides Michx.		trembling aspen		30
	Salix spp. L.		willow		6
	* Salix amygdaloides Anderss.		peach-leaf willow		10
	* Salix babylonica L.		weeping willow	1	1
	* Salix bebbiana Sarg.		long-beaked willow, beaked willow		17
	* Salix discolor Muhl.		pussy willow		8
	* Salix exigua Nutt.	Salix interior Rowlee	sandbar willow		30
	* Salix fragilis L.		brittle willow, crack willow	1	2
	* Salix lutea Nutt.		yellow willow		6
	* Salix maccalliana Rowlee		MacCall's willow, velvet fruit willow		3
	* Salix petiolaris Sm.		meadow willow, basket willow		15
	* Salix planifolia Pursh		diamond leaf willow, flat-leaved willow		10
	* Salix serissima (Bailey) Fern.		autumn willow		1
Santalaceae	Comandra umbellata (L.) Nutt. ssp. pallida (A. DC.) Piehl	Comandra pallida A. DC	pale comandra		1
	* Comandra umbellata (L.) Nutt. ssp. umbellata	Comandra richardsiana Fern.	bastard-toadflax		6
	Geocaulon lividum (Richards) Fern.	Comandr lividum Richards	toadflax		3
Scrophulariaceae	* Limosella aquatica L.		mudwort		1
	* Veronica peregrina L. ssp. xalapensis (Kunth) Pennell	Veronica peregrina var. xalapensis (Kunth) Pennell	hairy speedwell		1
	* Veronica persica Poir.		bird's-eye	1	1
Smilacaceae	Smilax lasioneura Hook.	Smilax herbacea L. var. lasioneura (Hook.) A. DC	carrion-flower		6
Solanaceae	* Capsicum annum L.		pepper	1	1
	* Solanum sp. L.		nightshade	1	1
Tiliaceae	Tilia cordata P. Mill.		little-leaf linden	1	2
Typhaceae	Typha angustifolia L.		narrow-leaved cat-tail	1	30
	Typha latifolia L.		cat-tail		14
Ulmaceae	Ulmus americana L.		American elm, white elm		1
	Ulmus pumila L.		Siberian elm	1	3
Urticaceae	* Urtica dioica L. ssp. gracilis (Ait.) Seland	Urtica dioica L. var. procera (Muhl. ex. Willd.) Wedd.	stinging nettle		3
Violaceae	Viola sp. L.		violet		2
	Viola adunca Sm.		violet		1
	* Viola canadensis L.	Viola rugulosa Greene	Canada violet		2
Vitaceae	Parthenocissus quinquefolia (L.) Planch.		Virginnia creeper		3

One hundred three of the 377 species identified were not native to Manitoba (Scoggan 1957). Most of these species were introduced from Eurasia following European colonization and settlement and are now widely naturalized in this area of North America. Seven of the top 10 most frequently encountered species (in terms of number of the survey units in which they were found) were introduced species and included Canada thistle (*Cirsium arvense*), field sow-thistle (*Sonchus arvense* ssp. *uliginosus*), common dandelion (*Taraxacum officinale*), smooth brome (*Bromus inermis*), yellow clover (*Melilotus officinalis*), common plantain (*Plantago major*), and couch or quack grass (*Elytrigia repens* var. *repens*). Although found in almost all areas of the property, introduced species tended to be most heavily concentrated in areas that were subject to periodic or recent disturbance or areas where they were deliberately planted for ornamental or cultural purposes. Examples include areas in the vicinity of roadways, parking areas, buildings, the Lake Cargill shoreline, and the garden and adjacent land north of the bison compound.

The most commonly encountered native species included Kentucky bluegrass (*Poa pratensis*), panicled aster (*Aster lanceolatus* spp. *lanceolatus* var. *lanceolatus*), western snowberry (*Symphoricarpos occidentalis*), giant goldenrod (*Solidago gigantea*), silverweed (*Argentina anserina*), aspen (*Populus tremuloides*), and sandbar willow (*Salix exigua*). Kentucky bluegrass was fairly ubiquitous across the property, with habitats ranging from highly disturbed alkaline areas and roadsides to damp meadows, shorelines, aspen stands, and open grasslands. Panicled aster was almost as widespread as Kentucky bluegrass, but tended to have a greater affinity to damper soils and wet areas. Western snowberry and aspen were common in forest stands and often extended into meadows, disturbed grounds, and grassland areas. Giant goldenrod and silverweed tended to occupy roadsides, moderately disturbed areas, grasslands, and forest clearings, while sandbar willow was common to lake shorelines, wetlands, and damp grounds bordering aspen stands and grassed areas.

Correspondence analysis (ter Braak and Smilauer 2002) was used to illustrate the degree of similarity between the 68 survey units based on the presence/absence of plant species. The analysis results along with information gleaned from aerial photos and field observations was used to group the survey units into the following nine general habitat types or vegetation cover classes (arranged from largest to smallest):

- areas cultivated for agricultural crops and garden produce (69.1 ha)
- aspen dominated hardwood forest stands of various ages (48.3 ha)
- lakes (42.1 ha)
- natural and artificially seeded grasslands (34.1 ha)
- impacted areas subjected to different degrees of disturbance and in various stages of revegetation (32.1 ha)
- wetlands (21.3 ha)
- lake shorelines (5.8 ha)
- damp ground supporting dense stands of willow (5.3 ha)
- shelter belts consisting of a mix of planted spruce and/or hardwood trees, along with shrubs and aspen (4.3 ha)

The nine habitat types and the 68 survey units are shown on the map in Figures 3. Note that these habitat types are very broad categories and the composition of species was often quite variable within each type of habitat. For example, the composition of species in disturbed areas varied considerably depending on the underlying substrate, the water regime, and the amount of time that had elapsed since the area was disturbed.

SUMMARY AND CONCLUSIONS

The considerable variation in soil characteristics, water regime, and past and present land use at the Fort Whyte Centre has resulted in a wide range of habitats and a relatively diverse vascular flora. A total of 377 different species, subspecies, and varieties of vascular plant were identified during the course of this survey. This included 103 introduced species and 274 native species. While an effort was made during this survey to develop as complete a list of species as possible, some species may have been inadvertently missed and thus the species richness may actually be higher than what is reported here. This survey was staggered over a period of three growing seasons and several landscaping projects were undertaken by the Centre during this time. Therefore, although an effort was made to periodically revisit previously sampled areas, the results may no longer be entirely representative of areas within the property that were altered since the start of the survey. It is also important to keep in mind that the composition of the vascular flora at the Centre is not static and past, present, and future land-use practices will have a great influence on the type of species that occur at the Centre in the future.

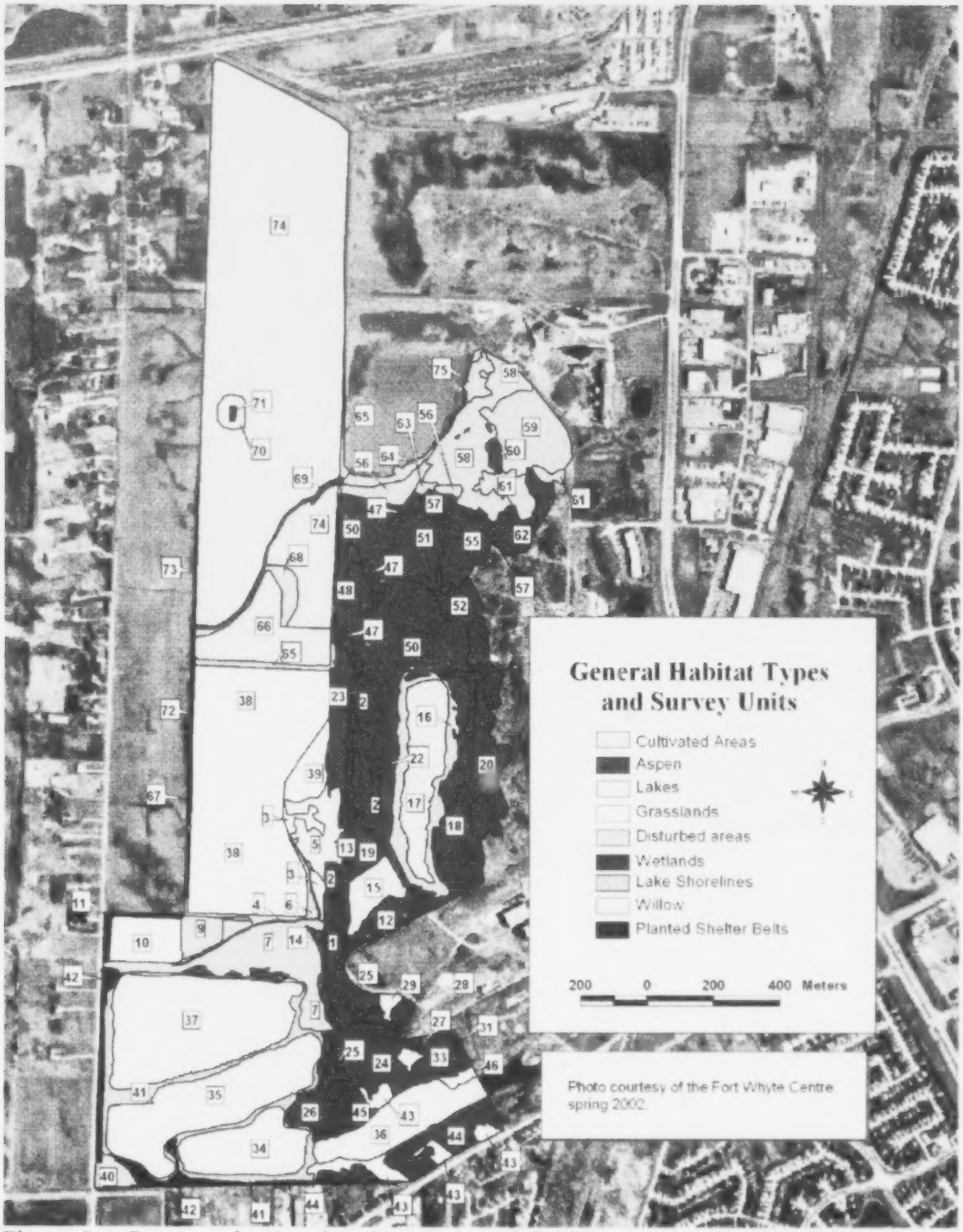

Figure 3. Survey units (numbered) and general habitat types at the Fort Whyte Centre, Winnipeg, Manitoba (2002 – 2004).

REFERENCES

Argus, G. W. 2004. *Salix of North America*. An interactive key to the genus *Salix* available online at http://flora.huh.harvard.edu:8080/actkey/actkey.jsp?setId=3390.

Boivin, B. 1967-1968. *Flora of the Prairie Provinces. Part I. Pteroids, Ferns, Conifers and Woody Dicopsids*. Phytologia 15:121-158; 15:329-446 (1967) 16:1-48 (1968). [Réimprimé dans Provancheria 2:1-202. 1968 [1967], avec le sous-titre A handbook to the flora of the provinces of Manitoba, Saskatchewan and Alberta.]

Boivin, B. 1972. *Flora of the Prairie Provinces. Part III. Connatae*. Phytologia 22:315-398; 23:1-140. [Réim-primé dans Provancheria 4:1-224, avec le sous-titre A handbook to the flora of the provinces of Manitoba, Saskatchewan and Alberta.]

Boivin, B. 1979. *Flora of the Prairie Provinces. Part IV. Monopsida*. Phytologia 42:1-24; 42:385- 414; 43:1-106; 43:223-251. [Réimprimé dans Provancheria 5:1-189, avec le sous-titre A handbook to the flora of the provinces of Manitoba, Saskatchewan and Alberta.]

Looman, J. and K. F. Best. 1979. *Budd's Flora of the Canadian Prairie Provinces*. Research Branch Agriculture Canada Publication 1662. Minister of Supply and Services Canada. Hull, PQ. 863 pp.

Cronquist, A. 1955. *Vascular Plants of the Pacific Northwest. Part 5: Compositae*. University of Washington Press. Seattle, WA. 343 pp.

Gleason, H. A. 1952. The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada. The New York Botanical Garden. 3 Vols. Hafner Press, New York, NY.

Hitchcock, C. L, A. Cronquist, and M. Ownbey. 1959. *Vascular plants of the Pacific Northwest. Part 4: Ericaceae Through Campanulaceae*. University of Washington Press. Seattle, WA. 510 pp.

Hitchcock, C. L, and A. Cronquist. 1961. *Vascular Plants of the Pacific Northwest. Part 3: Saxifragaceae to Ericaceae*. University of Washington Press. Seattle, WA. 614 pp.

Hitchcock, C. L, and A. Cronquist. 1964. *Vascular Plants of the Pacific Northwest. Part 2: Salicaceae to Saxifragaceae*. University of Washington Press. Seattle, WA. 597 pp.

Hitchcock, C. L, A. Cronquist, M. Ownbey, and J. W. Thompson. 1969. *Vascular Plants of the Pacific Northwest. Part 1: Vascular Cryptograms, Gymnosperms, and Monocotyledons.* University of Washington Press. Seattle, WA. 914 pp.

Kartesz, J. T. 1994. *A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland: Volume 2 – Thesaurus.* Biota of North American Program of the North Carolina Botanical Garden. Timber Press. Portland, OR. 816 pp.

NPWRC (Northern Prairie Wildlife Research Centre). 2004. *Midwestern Wetland Flora: Species List and Identification Key.* United States Geological Survey. Jamestown, ND. http://www.npwrc.usgs.gov/resource/othrdata/plntguid/species.htm.

Scoggan, H. J. 1957. *The Flora of Manitoba.* Bull. No. 140, Biological Series No. 47. National Museum of Canada. Ottawa, ON. 619 pp.

Scoggan, H. J. 1978. *The Flora of Canada.* Publications in Botany No. 7 (Parts 1-4). National Museum of Natural Sciences. Ottawa, ON. 1711 pp.

ter Braak, C.J.F. and P. Smilauer. 2002. *CANOCO Reference Manual and CanoDraw for Window's User's Guide: Software for Canonical Community Ordination (version 4.5).* Microcomputer Power. Ithaca, NY, USA. 500 pp.

USDA, NRCS (United States Department of Agriculture/Natural Resource Conservation Service). 2004. *The PLANTS Database, Version 3.5.* National Plant Data Center. Baton Rouge, LA 70874-4490 USA. (http://plants.usda.gov).

Voss, E. G. 1972. *Michigan Flora. Part I: Gymnosperms and Monocots.* Cranbrook Institute of Science Bulletin 55 & University of Michigan Herbarium. Bloomfield Hills, MI. xv + 488 pp.

Voss, E. G. 1996. *Michigan Flora. Part III: Dicots (Pyrolaceae – Compositae).* Cranbrook Institute of Science Bulletin 61 & University of Michigan Herbarium. Bloomfield Hills, MI. xii + 622 pp.

Wisconsin State Herbarium. 2004. *Wisflora: Wisconsin Vascular Plant Species.* University of Wisconsin. Madison, WI. http://www.botany.wisc.edu/wisflora/.

Table A1. List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Aceraceae	Acer negundo L.					1		1								1						1	1													
Alismataceae	Alisma gramineum Lej.																												1							
	Alisma triviale Pursh				1	1	1						1					1																	
	Sagittaria latifolia Willd.																																			
Amaranthaceae	Amaranthus retroflexus L.								1	1																										
Anacardiaceae	Toxicodendron radicans (L.) Kuntze ssp. radicans	1	1					1												1		1	1			1										
Apiaceae	Anethum graveolens L.																																			
(syn. Umbelliferae)	Cicuta maculata L.			1	1	1							1	1																						
	Coriandrum sativum L.																																			
	Daucus carota L.																																			
	Sanicula marilandica L.	1	1																1	1			1													
	Sium suave Walt.				1								1	1	1								1		1							1			
	Zizia aptera (Gray) Fern.																						1													
	Zizia aurea (L.) W.D.J. Koch	1		1				1											1	1																
Apocynaceae	Apocynum androsaemifolium L.	1	1													1			1	1																
	Apocynum cannabinum L.	1	1	1		1	1	1	1			1			1	1		1	1		1							1								1
Araliaceae	Aralia nudicaulis L.																						1													
Asclepiadaceae	Asclepias sp. L.																						1			1										
	Asclepias incarnata L.							1					1	1																						
	Asclepias ovalifolia Dene	1		1				1																												
	Asclepias speciosa Torr.			1		1	1	1		1	1					1			1	1																1
Asteraceae	Achillea millefolium L.		1					1	1				1			1			1				1													
(syn. Compositae)	Agoseris glauca (Pursh.) Raf.																																			
	Ambrosia artemisiifolia L. var. elatior (L.) Descourtilis							1																												
	Ambrosia trifida L.							1										1																		
	Antennaria parvifolia Nutt.							1																												
	Arctium minus Bernh.																																		1	
	Arnica cordifolia Hook.							1																												
	Artemisia absinthium L.						1	1	1														1													
	Artemisia biennis Willd.						1	1	1	1	1					1		1																	1	
	Artemisia frigida Willd.							1	1							1												1								
	Artemisia ludoviciana Nutt. ssp. ludoviciana																									1										
	Artemisia vulgaris L.				1			1	1							1																				
	Aster ciliolatus Lindl.	1																					1													
	Aster ericoides L. var. pansus (Blake) Boivin	1		1			1	1	1	1	1	1				1		1					1												1	
	Aster laevis L.	1					1	1	1														1													
	Aster lanceolatus Willd. ssp. lanceolatus var. lanceolatus			1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1		1	1					1			1				1	1
	Bidens cernua L.																																			
	Bidens frondosa L.																																	1		
	Bidens vulgata Greene				1			1			1						1															1				
	Brachyactis ciliata (Ledeb.) Ledeb. ssp. angusta (Lindl.) A.G. Jones				1			1	1									1																	

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Aceraceae	Acer negundo L.	1	1																	1						1		1			1	1			12
Alismataceae	Alisma gramineum Lej																																		1
	Alisma triviale Pursh															1																			6
	Sagittaria latifolia Willd.																		1																1
Amaranthaceae	Amaranthus retroflexus L.																	1							1		1	1							6
Anacardiaceae	Toxicodendron radicans (L.) Kuntze ssp. radicans			1	1	1					1	1																							12
Apiaceae	Anethum graveolens L.																								1										1
(syn. Umbelliferae)	Cicuta maculata L.																													1					6
	Coriandrum sativum L.																								1										1
	Daucus carota L.																								1										1
	Sanicula marilandica L.			1							1			1																					8
	Sium suave Walt.																													1					8
	Zizia aptera (Gray) Fern.					1	1				1																								4
	Zizia aurea (L.) W.D.J. Koch			1							1	1		1																					9
Apocynaceae	Apocynum androsaemifolium L.			1			1			1																									8
	Apocynum cannabinum L.		1	1			1	1	1		1																								21
Araliaceae	Aralia nudicaulis L.										1																									2
Asclepiadaceae	Asclepias sp. L.																																		2
	Asclepias incarnata L.																																		3
	Asclepias ovalifolia Dene																																		3
	Asclepias speciosa Torr.			1	1																			1		1			1		1		1		17
Asteraceae	Achillea millefolium L.	1		1		1			1		1				1																				13
(syn. Compositae)	Agoseris glauca (Pursh.) Raf.								1																										1
	Ambrosia artemisiifolia L. var. elatior (L.) Descourtils																	1		1															3
	Ambrosia trifida L.																						1	1											4
	Antennaria parvifolia Nutt.																																		1
	Arctium minus Bernh.	1															1			1				1											5
	Arnica cordifolia Hook.							1																											2
	Artemisia absinthium L.	1																		1															6
	Artemisia biennis Willd.																1	1		1			1	1	1		1	1				1			17
	Artemisia frigida Willd.	1	1		1										1		1	1		1			1	1	1		1	1							16
	Artemisia ludoviciana Nutt. ssp. ludoviciana		1	1	1	1		1	1															1											8
	Artemisia vulgaris L.													1																					5
	Aster ciliolatus Lindl.			1							1			1																					5
	Aster ericoides L. var. pansus (Blake) Boivin	1	1		1			1	1						1		1	1		1	1	1	1			1					1	1			27
	Aster laevis L.	1	1	1	1	1	1	1			1																								13
	Aster lanceolatus Willd. ssp. lanceolatus var. lanceolatus	1	1		1	1			1	1	1	1				1	1			1	1		1						1						36
	Bidens cernua L.									1															1		1	1							4
	Bidens frondosa L.																																		1
	Bidens vulgata Greene																																		5
	Brachyactis ciliata (Ledeb.) Ledeb. ssp. angusta (Lindl.) A.G. Jones																1	1		1	1		1		1			1						1	12

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Asteraceae (continued)	Centaurea cyanus L.							1	1																											
	Cirsium arvense (L.) Scop.	1	1	1	1	1	1	1	1	1	1	1	1		1	1		1	1	1	1	1	1			1		1		1					1	1
	Cirsium drummondii Torr. & Gray																																			
	Cirsium flodmanii (Rydb.) Arthur		1	1				1					1			1		1	1		1	1													1	1
	Conyza canadensis (L.) Cronq. var. canadensis									1	1					1																				
	Coreopsis tinctoria Nutt.								1																											
	Crepis tectorum L.						1	1	1	1						1																				
	Dracopis amplexicaulis (Vahl.) Cass.								1																											
	Echinacea purpurea (L.) Moench																																			
	Erigeron glabellus Nutt.	1	1		1	1																														
	Erigeron philadelphicus L.	1		1	1	1	1	1	1	1	1		1		1	1		1	1	1			1											1	1
	Erigeron strigosus Muhl. ex Willd.									1																										
	Eupatorium maculatum L. var. bruneri (Grey) Breitung							1																												
	Euthamia graminifolia (L.) Nutt.		1			1		1								1		1	1																	
	Gaillardia aristata Purth							1	1																											
	Grindelia squarrosa (Pursh) Dunal		1					1	1							1							1													
	Helianthus maximiliani Schrad.	1		1	1			1	1	1	1					1			1				1					1								
	Helianthus pauciflorus Nutt. ssp. subrhomboideus (Rydb.) O. Spring & E. Schilling							1								1																				
	Helianthus petiolaris Nutt.		1																																	
	Hieracium umbellatum L.																		1																	
	Iva xanthifolia Nutt.							1	1							1		1																		
	Lactuca serriola L.						1	1	1																											
	Lactuca tatarica (L.) C. A. Mey. var. pulchella (Pursh) Breitung			1												1																				
	Leucanthemum vulgare Lam.																																			
	Liatris ligulistylis (A. Nels.) K. Schum.																																			
	Matricaria discoidea DC.							1	1																											
	Matricaria perforata Merat							1	1																											
	Petasites sagittatus (Banks ex Pursh) Gray	1	1			1		1	1			1	1	1	1				1		1	1	1				1		1	1						
	Ratibida columnifera (Nutt.) Woot. & Standl.							1	1																											
	Rudbeckia hirta L. var. pulcherrima Farw.							1																												
	Rudbeckia laciniata L.																																			
	Senecio pauperculus Michx.	1	1			1		1					1						1	1			1													
	Senecio viscosus L.																1																			
	Senecio vulgaris L.								1																											
	Solidago spp. L.												1								1		1													
	Solidago canadensis L.								1		1												1													
	Solidago canadensis L. var. gilvocanescens Rydb.	1	1	1			1	1		1	1					1	1									1		1							1	1
	Solidago gigantea Ait.	1	1	1		1	1	1	1		1					1		1	1									1							1	
	Solidago missouriensis Nutt.															1																				
	Solidago nemoralis Ait. var. longipetiolata (Mack. & Bush) Palmer & Steyermark							1																												
	Solidago rigida L.	1		1			1	1								1							1			1									1	
	Sonchus arvensis L. ssp. uliginosus (Bieb.) Nyman	1	1	1	1	1	1	1	1	1	1		1	1	1			1	1	1		1	1			1	1	1							1	1
	Sonchus asper (L.) Hill	1							1																											
	Tanacetum vulgare L.																																			
	Taraxacum officinale G. H. Weber ex Wiggers	1	1	1			1	1	1	1	1		1			1		1	1			1	1					1							1	1
	Tragopon dubius Scop.							1	1							1																				
	Xanthium strumarium L.						1	1	1	1						1		1																		

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Asteraceae (continued)	Centaurea cyanus L.																																		2
	Cirsium arvense (L.) Scop.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1		1	1		1	1	1		54
	Cirsium drummondii Torr. & Gray																										1								1
	Cirsium flodmanii (Rydb.) Arthur		1		1																														13
	Conyza canadensis (L.) Cronq. var. canadensis	1																1		1			1	1					1						9
	Coreopsis tinctoria Nutt.																																		1
	Crepis tectorum L.																																		5
	Dracopis amplexicaulis (Vahl.) Cass.																																		1
	Echinacea purpurea (L.) Moench																								1										1
	Erigeron glabellus Nutt.								1																										5
	Erigeron philadelphicus L.					1				1	1	1		1											1				1						25
	Erigeron strigosus Muhl. ex Willd.														1																				2
	Eupatorium maculatum L. var. bruneri (Grey) Breitung																																		1
	Euthamia graminifolia (L.) Nutt.		1			1																													8
	Gaillardia aristata Pursh																																		2
	Grindelia squarrosa (Pursh) Dunal	1	1		1										1		1			1			1	1											13
	Helianthus maximiliani Schrad.	1	1	1	1		1	1							1		1					1	1	1											22
	Helianthus pauciflorus Nutt. ssp. subrhomboideus (Rydb.) O. Spring & E. Schilling			1																															3
	Helianthus petiolaris Nutt.																																		1
	Hieracium umbellatum L.					1				1				1																					4
	Iva xanthifolia Nutt.																1							1											6
	Lactuca serriola L.																	1		1		1	1	1											8
	Lactuca tatarica (L.) C. A. Mey. var. pulchella (Pursh) Breitung		1																						1										4
	Leucanthemum vulgare Lam.			1																															1
	Liatris ligulistylis (A. Nels.) K. Schum.		1	1	1																												1		3
	Matricaria discoidea DC.																1																		3
	Matricaria perforata Merat		1														1			1				1											6
	Petasites sagittatus (Banks ex Pursh) Gray									1	1		1																						19
	Ratibida columnifera (Nutt.) Woot. & Standl.																																		2
	Rudbeckia hirta L. var. pulcherrima Farw.																																		1
	Rudbeckia laciniata L.		1																																1
	Senecio pauperculus Michx.																																		8
	Senecio viscosus L.																	1		1															3
	Senecio vulgaris L.																																		1
	Solidago spp. L.																																		3
	Solidago canadensis L.				1		1		1													1		1		1			1		1	1			12
	Solidago canadensis L. var. gilvocanescens Rydb.		1	1			1		1																										17
	Solidago gigantea Ait.	1	1	1	1	1	1		1	1			1	1	1		1			1	1	1	1	1			1		1						32
	Solidago missouriensis Nutt.																																		1
	Solidago nemoralis Ait. var. longipetiolata (Mack. & Bush) Palmer & Steyermark		1				1								1																				4
	Solidago rigida L.		1	1	1		1	1	1		1																								15
	Sonchus arvensis L. ssp. uliginosus (Bieb.) Nyman	1	1	1	1	1	1		1	1	1			1			1	1		1	1	1	1	1	1	1	1		1		1	1	1		47
	Sonchus asper (L.) Hill					1											1	1		1			1	1	1		1								10
	Tanacetum vulgare L.														1																				1
	Taraxacum officinale G. H. Weber ex Wiggers	1	1			1			1	1	1	1		1	1	1	1			1	1	1	1	1	1	1					1	1			37
	Tragopon dubius Scop.																1			1		1		1										7
	Xanthium strumarium L.		1														1	1		1			1	1			1								13

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Betulaceae	Alnus incana (L.) Moench ssp. rugosa (Du Roi) Clausen																		1	1		1	1													
	Corylus cornuta Marsh.	1						1								1				1																
Boraginaceae	Lappula squarrosa (Retz.) Dumort.																																			
	Mertensia paniculata (Ait.) G. Don		1																																	
Brassicaceae	Brassica napus L.																																			
(syn. Cruciferae)	Brassica rapa L.																																			
	Capsella bursa-pastoris (L.) Medik.			1			1		1	1	1					1																				
	Descurainia sophia (L.) Webb. ex. Prantl							1	1	1																										
	Erysium asperum (Nutt.) DC							1																												
	Erysium cheiranthoides L.																																			
	Erysium inconspicuum (S. Wats.) MacM.																																			
	Hesperis matronalis L.								1																											
	Lepidium densiflorum Schrad.								1																											
	Raphanus sativus L.																																			
	Rorippa palustris (L.) Bess. ssp. fernaldiana (Butters & Abbe) Jonesell							1		1	1																									
	Sinapis arvensis L.				1		1	1	1	1						1																				
	Thlaspi arvense L.			1			1	1	1	1	1					1		1										1								1
Campanulaceae	Campanula rapunculoides L.															1		1	1																	
	Lobelia kalmii L.																	1	1																	
Caprifoliaceae	Lonicera dioica L. var. glaucescens (Rydb.) Butters																																			
	Lonicera tatarica L.												1										1													
	Symphoricarpos albus (L.) Blake	1																		1			1													1
	Symphoricarpos occidentalis Hook.	1	1	1		1		1	1				1			1			1	1		1	1			1		1						1	1
	Viburnum lentago L.	1																		1																
	Viburnum opulus L. var. americanum Ait.																			1			1													
	Viburnum rafinesquianum J. A. Schultes	1	1					1												1		1														
Caryophyllaceae	Gypsophila paniculata L.							1																												
	Moehringia lateriflora (L.) Fenzl	1	1																				1													
	Silene noctiflora L.								1							1																				
	Silene vulgaris (Moench) Garcke							1																												1
Chenopodiaceae	Atriplex patula L.																																			
	Atriplex prostrata Boucher ex DC																	1																		
	Chenopodium album L.							1	1	1						1																			1	
	Chenopodium rubrum L.							1																												
	Chenopodium salinum Standl.							1	1	1						1		1																		
	Chenopodium simplex (Torr.) Raf.							1	1																											
	Kochia scoparia (L.) Schrad.							1																												
	Suaeda calceoliformis (Hook.) Moq.																																			
Convolvulaceae	Calystegia sepium (L.) R. Br. ssp. sepium							1																												
Cornaceae	Cornus sericea L. ssp. sericea	1	1	1		1	1	1	1		1				1				1	1	1	1	1						1	1						
Cucurbitaceae	Cucumis sativus L.																																			

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Betulaceae	Alnus incana (L.) Moench ssp. rugosa (Du Roi) Clausen										1																							5
	Corylus cornuta Marsh.					1					1	1																			1	1			9
Boraginaceae	Lappula squarrosa (Retz.) Dumort.																			1							1								2
	Mertensia paniculata (Ait.) G. Don																																		1
Brassicaceae (syn. Cruciferae)	Brassica napus L.																											1							1
	Brassica rapa L.																							1	1		1								3
	Capsella bursa-pastoris (L.) Medik.																			1				1	1										9
	Descurainia sophia (L.) Webb. ex. Prantl																																		3
	Erysimum asperum (Nutt.) DC.																																		1
	Erysimum cheiranthoides L.	1																																	1
	Erysimum inconspicuum (S. Wats.) MacM.																	1																	1
	Hesperis matronalis L.	1																																	2
	Lepidium densiflorum Schrad.																	1		1				1											4
	Raphanus sativus L.																								1										1
	Rorippa palustris (L.) Bess. ssp. fernaldiana (Butters & Abbe) Jonsell									1								1		1				1	1		1								9
	Sinapis arvensis L.																	1						1											8
	Thlaspi arvense L.																	1						1	1		1	1							15
Campanulaceae	Campanula rapunculoides L.					1															1														5
	Lobelia kalmii L.																			1															3
Caprifoliaceae	Lonicera dioica L. var. glaucescens (Rydb.) Butters			1																															1
	Lonicera tatarica L.			1																															3
	Symphoricarpos albus (L.) Blake										1			1																					6
	Symphoricarpos occidentalis Hook.	1	1	1	1	1	1	1	1	1	1	1		1	1		1					1				1			1		1	1			35
	Viburnum lentago L.													1																					3
	Viburnum opulus L. var. americanum Ait.			1							1																								4
	Viburnum rafinesquianum J. A. Schultes										1	1																							7
Caryophyllaceae	Gypsophila paniculata L.																																		1
	Moehringia lateriflora (L.) Fenzl																																		3
	Silene noctiflora L.																								1			1							4
	Silene vulgaris (Moench) Garcke																			1															3
Chenopodiaceae	Atriplex patula L.																1								1									1	3
	Atriplex prostrata Boucher ex DC.																																		1
	Chenopodium album L.																	1		1				1	1		1	1					1		12
	Chenopodium rubrum L.																							1											2
	Chenopodium salinum Standl.																										1	1							7
	Chenopodium simplex (Torr.) Raf.																								1										3
	Kochia scoparia (L.) Schrad.																1			1															3
	Suaeda calceoliformis (Hook.) Moq.																1																1		2
Convolvulaceae	Calystegia sepium (L.) R. Br. ssp. sepium	1	1														1																		4
Cornaceae	Cornus sericea L. ssp. sericea		1	1	1	1	1	1		1	1		1	1						1									1						28
Cucurbitaceae	Cucumis sativus L.																								1										1

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Cyperaceae	Carex spp. L.																			1																
	Carex aquatalis Wahlenb.											1	1																1							
	Carex atherodes Spreng.									1		1	1									1		1						1	1					
	Carex aurea Nutt.			1									1	1																						
	Carex deweyana Schwein.																												1							
	Carex diandra Shrank											1																								
	Carex lanuginosa Michx.			1	1		1				1		1	1			1		1					1			1		1							
	Carex lasiocarpa Fern. var. americana Fern.			1	1	1		1		1		1	1	1	1		1	1						1												1
	Carex lenticularis Michx.											1																								
	Carex praegracilis W. Boott																									1										
	Carex praticola Rydb.												1			1																				
	Carex rostrata Stokes					1						1																								
	Carex sartwellii Dewey	1		1		1							1		1												1		1							
	Carex teneri Dewey	1	1							1																										
	Carex vulpinoidea Michx.						1			1	1																									
	Eleocharis sp. R. Br.												1																							
	Eleocharis engelmannii Steud.																																			
	Eleocharis palustris (L.) Roemer & J. A. Schultes			1	1	1	1	1		1	1	1	1		1		1	1					1						1	1	1				1
	Eriophorum angustifolium Honckeny											1																								
	Scirpus acutus Muhl. ex Bigelow				1		1						1				1	1													1	1	1			
	Scirpus maritimus L.				1								1			1	1	1																		
	Scirpus tabernaemontani K. C. Gmel.				1							1																								
Elaeagnaceae	Elaeagnus angustifolia L.							1	1		1					1								1												
	Shepherdia argentea (Pursh) Nutt.			1				1			1																									
Equisetaceae	Equisetum arvense L.																							1					1	1						
	Equisetum hyemale L.																																			
	Equisetum palustre L.			1															1																	
	Equisetum pratense Ehrh.		1		1	1																1	1								1				1
	Equisetum sylvaticum L.							1					1		1																					
Euphorbiaceae	Chamaesyce serpyllifolia (Pers.) Small var. serpyllifolia							1	1																											
	Euphorbia marginata Pursh																			1																
Fabaceae	Astragalus adsurgens Pallas var. robustior Hook.												1			1							1					1								1
(syn. Leguminosae)	Astragalus agrestis Dougl. ex G. Don						1	1					1										1					1								
	Astragalus canadensis L.															1																				
	Caragana arborescens Lam.						1				1																									
	Dalea purpurea Vent. var. purpurea								1																											
	Glycine max (L.) Merr.																																			
	Glycyrrhiza lepidota Pursh	1	1				1	1	1				1			1		1	1	1		1	1			1		1								
	Lathyrus ochroleucus Hook.	1	1																	1																
	Lathyrus palustris L.	1		1															1	1		1	1					1	1							
	Lathyrus venosus Muhl. ex Willd.		1										1		1			1	1	1		1														
	Lotus corniculatus L.	1		1	1		1	1	1	1	1			1		1							1					1								
	Medicago lupulina L.	1		1			1	1	1	1	1					1		1		1			1					1								
	Medicago sativa L.	1	1	1	1		1	1	1	1			1	1		1			1			1	1					1						1	1	
	Melilotus officinalis (L.) Lam.	1	1	1	1		1	1	1	1	1					1						1	1					1						1	1	
	Trifolium fragiferum L.																																			
	Trifolium hybridum L.	1	1	1			1	1								1		1				1	1					1						1	1	
	Trifolium pratense L.	1			1		1	1	1	1	1												1					1						1	1	
	Trifolium repens L.							1			1																									
	Vicia americana Muhl. ex Willd.	1	1					1					1										1			1		1								
	Vicia cracca L.	1	1	1			1	1	1	1	1					1			1		1	1	1													

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Cyperaceae	Carex spp. L.									1					1																				3
	Carex aquatilis Wahlenb.																		1											1					5
	Carex atherodes Spreng.											1																							8
	Carex aurea Nutt.																																		3
	Carex deweyana Schwein.																																		1
	Carex diandra Shrank													1																					2
	Carex lanuginosa Michx.																																		11
	Carex lasiocarpa Ehrh. var. americana Fern.																																		13
	Carex lenticularis Michx.																		1																2
	Carex praegracilis W. Boott												1																						2
	Carex praticola Rydb.																																		2
	Carex rostrata Stokes																																		2
	Carex sartwellii Dewey								1												1														8
	Carex tenera Dewey		1			1								1																					6
	Carex vulpinoidea Michx.																																		3
	Eleocharis sp. R. Br.																																		1
	Eleocharis engelmannii Steud.																							1											1
	Eleocharis palustris (L.) Roemer & J. A. Schultes												1			1			1																20
	Eriophorum angustifolium Honckeny																																		1
	Scirpus acutus Muhl. ex. Bigelow																				1														9
	Scirpus maritimus L.															1			1		1							1							9
	Scirpus tabernaemontani K. C. Gmel.															1			1																4
Elaeagnaceae	Elaeagnus angustifolia L.		1	1	1		1								1		1									1									12
	Shepherdia argentea (Pursh) Nutt.																																		3
Equisetaceae	Equisetum arvense L.										1		1				1																		6
	Equisetum hyemale L.					1										1																			2
	Equisetum palustre L.																																		2
	Equisetum pratense Ehrh.		1	1		1																													10
	Equisetum sylvaticum L.			1																															4
Euphorbiaceae	Chamaesyce serpyllifolia (Pers.) Small var. serpyllifolia																																		2
	Euphorbia marginata Pursh																																		1
Fabaceae	Astragalus adsurgens Pallas var. robustior Hook.								1																										9
(syn. Leguminosae)	Astragalus agrestis Dougl. ex G. Don																																		5
	Astragalus canadensis L.																																		1
	Caragana arborescens Lam.			1																															3
	Dalea purpurea Vent. var. purpurea																																		1
	Glycine max (L.) Merr.																											1							1
	Glycyrrhiza lepidota Pursh			1	1	1	1	1	1	1					1		1				1		1				1					1	1		28
	Lathyrus ochroleucus Hook.													1																					4
	Lathyrus palustris L.		1	1					1	1				1																					13
	Lathyrus venosus Muhl. ex Willd.			1																															8
	Lotus corniculatus L.	1	1												1		1	1			1		1	1											20
	Medicago lupulina L.		1			1			1		1	1			1		1	1			1		1		1	1		1	1			1			27
	Medicago sativa L.	1	1						1			1		1			1	1			1		1		1	1	1		1			1	1		32
	Melilotus officinalis (L.) Lam.	1	1	1	1	1	1	1	1	1		1			1		1	1			1		1		1	1	1					1	1		35
	Trifolium fragiferum L.																				1								1						2
	Trifolium hybridum L.								1		1						1	1					1		1	1		1	1						21
	Trifolium pratense L.	1	1	1		1			1	1					1		1									1	1					1	1		23
	Trifolium repens L.		1	1		1																													5
	Vicia americana Muhl. ex Willd.	1	1	1	1	1	1	1	1		1	1		1												1			1		1	1			22
	Vicia cracca L.	1	1	1	1	1		1		1	1	1		1			1			1												1			26

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Fagaceae	Quercus macrocarpa Michx.	1						1			1					1				1		1	1													
Gentianaceae	Gentiana andrewsii Griseb.	1	1																																	
Geraniaceae	Erodium cicutarium (L.) L'Her. ex Ait.																																			
	Geranium carolinianum L.																																			
	Geranium bicknellii Britt.							1		1																										
Grossulariaceae	Ribes americana P. Mill.																																			
	Ribes hirtellum Michx.	1				1																														
	Ribes lacustre (Pers.) Poir.																																			
	Ribes oxyacanthoides L.		1										1		1				1	1		1	1													
Haloragaceae	Myriophyllum sibiricum Komarov																							1	1											
Hydrocharitaceae	Elodea canadensis Michx.																							1	1						1	1		1		
Hydrophyllaceae	Phacelia campanularia Gray							1	1																											
Iridaceae	Sisyrinchium montanum Greene		1	1			1	1	1				1	1					1				1					1								1
Juncaceae	Juncus alpinoarticulatus Chaix																		1																	
	Juncus ambiguus Guss.				1								1					1													1	1				
	Juncus balticus Willd. var. littoralis Engelm.	1		1	1	1		1				1	1	1	1			1					1	1		1			1	1	1	1				1
	Juncus compressus Jacq.				1								1																							
	Juncus dudleyi Wieg.				1		1																													
	Juncus nodosus L.				1																															
	Juncus torreyi Coville				1														1																	
	Juncus tenuis Willd.	1																																		
Lamiaceae (syn. **Labiatae**)	Dracocephalum parviflorum Nutt.						1	1	1		1																									
	Galeopsis bifida Boenn.							1		1	1					1																				
	Lycopus americanus Muhl. ex Bart.		1	1	1	1	1	1		1			1	1	1			1	1			1	1							1	1				1
	Lycopus asper Greene		1			1		1				1	1	1	1		1	1	1		1		1							1			1		
	Leonurus cardiaca L.																																			
	Mentha canadensis L.		1	1		1				1		1	1			1	1	1	1		1	1														1
	Monarda fistulosa L.	1								1						1																				
	Physostegia parviflora Nutt. ex Gray																				1															
	Salvia reflexa Hornem.								1																											
	Scutellaria galericulata L.											1			1																					
	Stachys palustris L. ssp. pilosa (Nutt.) Epling	1	1	1		1		1		1			1		1		1					1													
	Stachys tenuifolia Willd. var. tenuifolia						1																													
	Teucrium canadense L. var. occidentale (Gray) McClintock & Epling	1	1									1							1																	
Lemnaceae	Lemna minor L.					1					1	1												1												
	Lemna trisulca L.																							1												
Lentibulariaceae	Utricularia macrorhiza Le Conte											1																								

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Fagaceae	Quercus macrocarpa Michx			1		1					1	1		1																1				13
Gentianaceae	Gentiana andrewsii Griseb		1	1		1		1																											6
Geraniaceae	Erodium cicutarium (L.) L'Her. ex Ait.																							1											1
	Geranium carolinianum L.																								1		1								2
	Geranium bicknellii Britt.																								1										3
Grossulariaceae	Ribes americana P. Mill.	1				1																													2
	Ribes hirtellum Michx.										1																								3
	Ribes lacustre (Pers.) Poir.									1																									1
	Ribes oxyacanthoides L.					1				1			1	1																					11
Haloragaceae	Myriophyllum sibiricum Komarov																																		2
Hydrocharitaceae	Elodea canadensis Michx.																																		5
Hydrophyllaceae	Phacelia campanularia Gray																																		2
Iridaceae	Sisyrinchium montanum Greene								1																										12
Juncaceae	Juncus alpinoarticulatus Chaix																																		1
	Juncus ambiguus Guss.																																		5
	Juncus balticus Willd. var. littoralis Engelm.			1	1			1	1										1																23
	Juncus compressus Jacq.										1					1			1		1														6
	Juncus dudleyi Wieg.								1															1												4
	Juncus nodosus L.																																		1
	Juncus torreyi Coville																																		2
	Juncus tenuis Willd.																																		1
Lamiaceae	Dracocephalum parviflorum Nutt.																	1										1							6
(syn. Labiatae)	Galeopsis bifida Boenn.	1	1																																6
	Lycopus americanus Muhl. ex. Bart.		1							1																				1					20
	Lycopus asper Greene		1							1			1			1			1											1					20
	Leonurus cardiaca L.	1																																	1
	Mentha canadensis L.		1							1			1			1			1											1					19
	Monarda fistulosa L.																																		3
	Physostegia parviflora Nutt. ex Gray																																		1
	Salvia reflexa Hornem.																																		1
	Scutellaria galericulata L.																																		2
	Stachys palustris L. ssp. pilosa (Nutt.) Epling																	1		1															12
	Stachys tenuifolia Willd. var. tenuifolia													1		1																			3
	Teucrium canadense L. var. occidentale (Gray) McClintock & Epling																																		4
Lemnaceae	Lemna minor L.																																		4
	Lemna trisulca L.																																		1
Lentibulariaceae	Utricularia macrorhiza Le Conte																																		1

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Liliaceae	Asparagus officinalis L.																																			
	Lilium philadelphicum L.	1																																		
	Maianthemum canadense Desf.	1	1																	1		1	1													
	Maianthemum stellatum (L.) Link	1	1										1									1	1			1										
	Zigadenus elegans Pursh	1																																		
Linaceae	Linum catharticum L.							1																												
	Linum usitatissimum L.							1	1																											
Malvaceae	Malva rotundifolia L.									1								1																		
Oleaceae	Fraxinus nigra Marsh.															1																				
	Fraxinus pennsylvanica Marsh.							1	1		1										1		1													
	Syringa vulgaris L.								1																											
Onagraceae	Epilobium ciliatum Raf. ssp. ciliatum	1	1	1	1	1	1	1	1	1	1																									
	Epilobium leptophyllum Raf.											1																								
	Epilobium palustre L.																	1																		
	Oenothera biennis L.															1																				
Orchidaceae	Cypripedium pubescens Willd.	1						1																												
	Cypripedium reginae Walt.																																			
Papaveraceae	Chelidonium majus L.																																			
	Papaver rhoeas L.								1																											
	Papaver somniferum L.							1																												
Pinaceae	Larix occidentalis Nutt.								1																											
	Picea glauca (Moench) Voss	1					1	1	1		1												1					1								
	Picea pungens Engelm.							1	1		1																									
Plantaginaceae	Plantago major L.	1	1	1	1	1	1	1	1		1		1			1	1	1	1	1		1							1						1	1
Poaceae (syn. Gramineae)	Agropyron cristatum (L.) Gaertn.						1	1																												
	Agrostis gigantea Roth		1		1	1	1	1		1						1																				
	Agrostis scabra Willd.																																			1
	Alopecurus pratensis L.	1					1	1			1																									
	Andropogon gerardii Vitman							1		1																										
	Avena fatua L.						1									1																				
	Beckmannia syzigachne (Steud.) Fern.			1	1		1	1		1	1					1	1																	1	1	
	Bromus ciliatus L.																			1																
	Bromus inermis Leyss.	1	1					1	1	1	1		1			1	1						1					1							1	1
	Bromus inermis Leyss. ssp. pumpellianus (Scribn.) Wagnon var. pumpellianus (Scribn.) C. L. Hitchc.			1			1	1											1			1													
	Calamagrostis canadensis (Michx.) Beiv.		1										1		1								1				1								
	Calamagrostis stricta (Timm) Koel. ssp. inexpansa (Gray) C. W. Greene															1																				
	Calamagrostis stricta (Timm) Koel. ssp. stricta var. stricta (Ehrh.) P. G. Gaertin., B. Mey. & Shreb.		1									1								1	1	1														
	Echinochloa crusgalli (L.) Beauv.				1		1	1	1																									1	1	
	Elymus canadensis L.																																			
	Elymus trachycaulus (Link) Gould ex Skinner ssp. subsecundus (Link) A. & D. Love							1																											1	
	Elymus trachycaulus (Link) Gould ex Skinner ssp. trachycaulus							1	1	1						1																				
	Elytrigia repens (L.) Desv. ex B.D. Jackson var. repens		1	1	1		1	1	1	1	1						1		1									1						1	1

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Liliaceae	Asparagus officinalis L.					1																													1
	Lilium philadelphicum L.			1																															2
	Maianthemum canadense Desf.										1																								6
	Maianthemum stellatum (L.) Link		1	1							1																								9
	Zygadenus elegans Pursh																																		1
Linaceae	Linum catharticum L.																																		1
	Linum usitatissimum L.																							1				1						1	5
Malvaceae	Malva rotundifolia L.																																		2
Oleaceae	Fraxinus nigra Marsh.																																		1
	Fraxinus pennsylvanica Marsh.		1										1									1									1	1		10
	Syringa vulgaris L.																																		1
Onagraceae	Epilobium ciliatum Raf. ssp. ciliatum									1			1	1		1					1			1											10
	Epilobium leptophyllum Raf.												1																						2
	Epilobium palustre L.																																		1
	Oenothera biennis L.																																		1
Orchidaceae	Cypripedium pubescens Willd.			1																															3
	Cypripedium reginae Walt.												1																						1
Papaveraceae	Chelidonium majus L.	1																																	1
	Papaver rhoeas L.																																		1
	Papaver somniferum L.																																		1
Pinaceae	Larix occidentalis Nutt.																																		1
	Picea glauca (Moench) Voss		1	1																															9
	Picea pungens Engelm.																																		3
Plantaginaceae	Plantago major L.		1						1			1	1	1	1			1			1	1		1	1	1	1	1							33
Poaceae (syn. Gramineae)	Agropyron cristatum (L.) Gaertn.																1																		1
	Agrostis gigantea Roth					1					1	1																							10
	Agrostis scabra Willd.												1				1			1															3
	Alopecurus pratensis L.																																		5
	Andropogon gerardii Vitman		1	1	1	1		1	1																										8
	Avena fatua L.		1																					1	1		1								6
	Beckmannia syzigachne (Steud.) Fern.									1			1								1			1	1		1	1							17
	Bromus ciliatus L.																																		1
	Bromus inermis Leyss.	1	1	1	1	1	1	1	1	1	1	1		1	1		1					1	1	1	1	1			1		1	1	1		36
	Bromus inermis Leyss. ssp. pumpellianus (Scribn.) Wagnon var. pumpellianus (Scribn.) C. L. Hitchc.																																		5
	Calamagrostis canadensis (Michx.) Beav.			1		1				1	1		1	1															1						12
	Calamagrostis stricta (Timm) Koel. ssp. inexpansa (Gray) C. W. Greene																																		1
	Calamagrostis stricta (Timm) Koel. ssp. stricta var. stricta (Ehrh.) P. G. Gaertn., B. Mey. & Shreb.																																		5
	Echinochloa crusgalli (L.) Beauv.																	1	1	1				1	1		1								12
	Elymus canadensis L.		1									1																							2
	Elymus trachycaulus (Link) Gould ex Skinner ssp. subsecundus (Link) A. & D. Love	1		1								1			1					1	1														8
	Elymus trachycaulus (Link) Gould ex Skinner ssp. trachycaulus																																		4
	Elytrigia repens (L.) Desv. ex B.D. Jackson var. repens	1	1	1	1		1	1	1	1	1				1	1	1	1	1	1	1	1	1	1					1						33

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Poaceae	Festuca ovina L.			1			1		1																									1	1
(continued)	Glyceria grandis S. Wats.																																			
	Hierochloe odorata (L.) Beauv.					1		1																												1
	Hordeum jubatum L.	1		1	1		1	1	1	1	1		1			1		1					1											1	1
	Lolium perenne L. ssp. multiflorum (Lam.) Husnot							1	1																											
	Muhlenbergia mexicana (L.) Trin.		1																																	
	Panicum virgatum L.							1		1	1																									
	Pascopyrum smithii (Rydb.) A. Love							1																												
	Phalaris arundinacea L.	1	1	1		1	1	1								1		1	1	1		1	1		1						1		1			1
	Phleum pratense L.	1	1	1	1		1	1	1	1	1					1				1		1												1	1
	Phragmites australis (Cav.) Trin. ex Steud.					1	1										1	1					1	1			1				1		1			
	Poa annua L.																																			
	Poa arida Vasey				1	1			1																											
	Poa compressa L.	1		1																																
	Poa nemoralis L.			1																																
	Poa palustris L.		1				1	1	1	1	1					1			1	1		1														
	Poa pratensis L.	1	1	1		1	1	1		1			1		1	1		1					1			1		1	1	1				1	1
	Puccinellia nuttalliana (J. A. Schultes) A. S. Hitchc.				1											1																			
	Schizachyrium scoparium (Michx.) Nash ssp. scoparium							1																												
	Setaria glauca (L.) Beauv.			1			1		1	1																										
	Setaria viridis (L.) Beauv.								1																										1	
	Sorghastrum nutans (L.) Nash							1																												
	Spartina pectinata Link	1		1				1				1	1			1		1					1	1	1	1				1		1			
Polemoniaceae	Gilia capitata Sims							1																												
Polygonaceae	Polygonum amphibium L. var. stipulaceum Coleman				1	1	1			1		1	1		1																			1	1
	Polygonum aviculare L.							1	1							1																			1	
	Polygonum convolvulus L.						1	1	1	1						1																			1	
	Polygonum erectum L.																																			
	Polygonum lapathifolium L.				1			1									1																			
	Polygonum lapathifolium L. var. lapathifolium								1		1																									
	Polygonum lapathifolium L. var. salicifolium Sibth.						1			1						1																				
	Polygonum pensylvanicum L.						1																													
	Rumex aquaticus L. var. fenestratus (Greene) Dorn	1	1	1	1	1	1	1	1	1	1					1																			
	Rumex crispus L.							1		1	1																								1	
	Rumex maritimus L.																			1																
	Rumex patientia L.									1																										
	Rumex salicifolius Weinm. var. mexicanus (Meisn.) C. L. Hitchc.						1	1								1																		1		
	Rumex stenophyllus Ledeb.										1					1																				
Portulacaceae	Portulaca oleracea L.							1	1																											

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Poaceae	Festuca ovina L.																																		5
(continued)	Glyceria grandis S. Wats.																		1			1													2
	Hierochloe odorata (L.) Beauv.												1																						4
	Hordeum jubatum L.	1	1		1	1			1								1			1	1		1	1	1		1								26
	Lolium perenne L. ssp. multiflorum (Lam.) Humot																											1							3
	Muhlenbergia mexicana (L.) Trin.																								1										2
	Panicum virgatum L.		1																																4
	Pascopyrum smithii (Rydb.) A. Love																																		1
	Phalaris arundinacea L.			1	1	1	1						1	1			1			1															24
	Phleum pratense L.	1	1	1																1															18
	Phragmites australis (Cav.) Trin. ex Steud.				1		1						1			1					1														14
	Poa annua L.																							1											1
	Poa arida Vasey																																		3
	Poa compressa L.																																		2
	Poa nemoralis L.																																		1
	Poa palustris L.		1								1		1			1																			14
	Poa pratensis L.		1	1	1	1		1	1	1	1	1		1	1	1	1		1	1		1		1		1			1		1	1			39
	Puccinellia nuttalliana (J. A. Schultes) A. S. Hitchc.																1				1													1	3
	Schizachyrium scoparium (Michx.) Nash ssp. scoparium																																		1
	Setaria glauca (L.) Beauv.																							1											5
	Setaria viridis (L.) Beauv.																	1							1		1	1							6
	Sorghastrum nutans (L.) Nash		1																																2
	Spartina pectinata Link		1	1	1	1	1	1	1	1			1				1	1	1			1							1	1					28
Polemoniaceae	Giba capitata Sims																																		1
Polygonaceae	Polygonum amphibium L. var. stipulaceum Coleman															1									1					1					12
	Polygonum aviculare L.																	1							1	1					1				8
	Polygonum convolvulus L.																							1	1		1	1							10
	Polygonum erectum L.																								1			1							2
	Polygonum lapathifolium L.																	1							1		1	1							7
	Polygonum lapathifolium L. var. lapathifolium																																		2
	Polygonum lapathifolium L. var. salicifolium Sibth.																																		3
	Polygonum pensylvanicum L.																																		1
	Rumex aquaticus L. var. fenestratus (Greene) Dorn													1																					12
	Rumex crispus L.	1	1							1						1		1	1	1	1		1		1	1	1	1	1		1		1		20
	Rumex maritimus L.																		1																2
	Rumex patientia L.																																		1
	Rumex salicifolius Weinm. var. mexicanus (Meisn.) C. L. Hitchc.																																		4
	Rumex stenophyllus Ledeb.																																		2
Portulacaceae	Portulaca oleracea L.																																		2

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Potamogetonaceae	Potamogeton filiformis Pers. var. alpinus (Blytt) Aschers. & Graebn.												1				1														1	1		1		
	Potamogeton pectinatus L.																								1											
	Potamogeton richardsonii (Benn.) Rydb.																							1							1	1				
	Potamogeton vaginatus Turcz.																							1												
Primulaceae	Lysimachia ciliata L.					1																							1							
	Lysimachia thyrsiflora L.		1			1							1		1			1																		
Pyrolaceae	Pyrola elliptica Nutt.		1																			1														
Ranunculaceae	Actaea rubra (Ait.) Willd.																																			
	Anemone canadensis L.	1	1	1		1	1	1		1	1					1			1	1		1	1			1										
	Anemone cylindrica Gray							1								1																				
	Anemone quinquefolia L.																																			
	Aquilegia canadensis L.																																			
	Consolida ajacis (L.) Schur								1																											
	Ranunculus cymbalaria Pursh			1	1			1					1				1	1					1													
	Ranunculus macounii Britt.		1	1						1	1				1				1																	1
	Ranunculus pensylvanicus L. f.					1																														
	Ranunculus sceleratus L.	1			1		1						1																							
	Thalictrum dasycarpum Fisch. & Ave-Lall.		1					1											1	1			1													
	Thalictrum venulosum Trel.	1	1																			1														
Rhamnaceae	Rhamnus alnifolia L'Her.		1																		1	1	1													
Rosaceae	Amelanchier alnifolia (Nutt.) Nutt. ex M.Roemer	1	1						1							1			1	1		1	1							1						
	Argentina anserina (L.) Rydb.		1	1	1	1	1	1			1	1	1	1	1	1		1	1				1											1	
	Crataegus chrysocarpa Ashe		1				1	1	1											1		1														
	Fragaria virginiana Duchesne		1	1															1	1		1	1													
	Geum macrophyllum Willd. var. perincisum (Rydb.) Hulten																																			
	Potentilla norvegica L.			1				1	1	1			1									1														
	Potentilla paradoxa Nutt.							1																												
	Potentilla rivalis Nutt. var. millegrana (Engelm. ex Lehm.) S. Wats.																																			
	Prunus americana Marsh.	1						1																												
	Prunus cerasifera Ehrh.															1																				
	Prunus nigra Ait.															1																				
	Prunus pensylvanica L. f.										1								1	1			1													
	Prunus virginiana L.								1		1				1	1		1	1	1			1													
	Rosa acicularis Lindl.	1	1													1		1	1	1		1	1			1				1					1
	Rosa arkansana Porter	1	1	1			1	1			1															1										
	Rosa blanda Ait.					1																														
	Rosa woodsii Lindl.	1		1		1			1																			1								
	Rubus idaeus L.		1													1																				
	Rubus pubescens Raf.	1	1																1	1		1	1													
	Spiraea alba Du Roi		1																		1	1								1						
Rubiaceae	Galium boreale L.	1	1	1			1	1		1						1			1		1	1	1			1										
	Galium trifidum L.																			1																

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Potamogetonaceae	Potamogeton filiformis Pers. var. alpinus (Blytt) Aschers. & Graebn.																		1															6
	Potamogeton pectinatus L.																																		1
	Potamogeton richardsonii (Benn.) Rydb.																																		3
	Potamogeton vaginatus Turcz.																																		1
Primulaceae	Lysimachia ciliata L.																																		2
	Lysimachia thyrsiflora L.																																		5
Pyrolaceae	Pyrola elliptica Nutt.																																		2
Ranunculaceae	Actaea rubra (Ait.) Willd.										1																								1
	Anemone canadensis L.		1	1		1	1	1		1	1	1		1			1											1						25
	Anemone cylindrica Gray			1	1																														4
	Anemone quinquefolia L.													1																					1
	Aquilegia canadensis L.			1																															1
	Consolida ajacis (L.) Schur																																		1
	Ranunculus cymbalaria Pursh																																		7
	Ranunculus macounii Britt.									1						1			1		1	1								1					13
	Ranunculus pensylvanicus L.f.																				1														2
	Ranunculus sceleratus L.												1																						5
	Thalictrum dasycarpum Fisch. & Ave-Lall.			1										1																					7
	Thalictrum venulosum Trel.			1					1		1	1		1																					8
Rhamnaceae	Rhamnus alnifolia L'Her.																														1	1			6
Rosaceae	Amelanchier alnifolia (Nutt.) Nutt. ex M.Roemer			1		1	1			1	1	1		1																	1	1			18
	Argentina anserina (L.) Rydb.	1	1		1				1	1		1			1	1	1	1	1	1	1		1				1								31
	Crataegus chrysocarpa Ashe			1		1					1																				1				10
	Fragaria virginiana Duchesne					1		1		1	1																									10
	Geum macrophyllum Willd. var. perincisum (Rydb.) Hulten																												1						1
	Potentilla norvegica L.																								1		1	1							9
	Potentilla paradoxa Nutt.																																		1
	Potentilla rivalis Nutt. var. millegrana (Engelm. ex Lehm.) S. Wats.																								1										1
	Prunus americana Marsh.		1																			1									1				5
	Prunus cerasifera Ehrh.																																		1
	Prunus nigra Ait.																																		1
	Prunus pensylvanica L. f.					1					1			1																					7
	Prunus virginiana L.			1		1					1																				1	1			13
	Rosa acicularis Lindl.		1	1	1					1	1	1		1															1						19
	Rosa arkansana Porter				1			1																											9
	Rosa blanda Ait.						1																												2
	Rosa woodsii Lindl.	1	1			1																				1				1				10
	Rubus idaeus L.		1																																3
	Rubus pubescens Raf.			1						1	1			1															1						11
	Spiraea alba Du Roi					1				1	1		1	1																					9
Rubiaceae	Galium boreale L.			1		1		1	1		1	1		1																					19
	Galium trifidum L.										1			1																					3

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27	28	29	31	33	34	35	36	37	38	39
Salicaceae	Populus alba L.															1																				
	Populus balsamifera L.		1			1		1					1			1		1	1	1		1														
	Populus deltoides Bartr. ex Marsh.			1	1			1	1		1					1		1	1	1			1													
	Populus deltoides Bartr. ex Marsh. ssp. monilifera (Ait.) Eckenwalder			1												1																				
	Populus nigra L.						1																													
	Populus tremuloides Michx.	1	1			1		1			1		1			1			1	1	1	1	1			1				1						1
	Salix spp. L.		1																																	
	Salix amygdaloides Anderss.						1	1	1							1			1					1												
	Salix babylonica L.																																			
	Salix bebbiana Sarg.	1	1			1		1			1		1			1			1	1	1		1				1		1	1						
	Salix discolor Muhl.		1																			1	1													
	Salix exigua Nutt.		1		1	1	1	1	1	1	1		1	1		1		1						1	1		1		1	1	1	1	1			
	Salix fragilis L.										1													1												
	Salix lutea Nutt.												1	1									1	1			1									
	Salix maccalliana Rowlee																		1		1															
	Salix petiolaris Sm.		1	1		1	1			1	1	1			1				1										1	1						1
	Salix planifolia Pursh	1	1	1						1		1			1																					
	Salix serissima (Bailey) Fern.						1																													
Santalaceae	Comandra umbellata (L.) Nutt. ssp. pallida (A. DC.) Piehl							1																												
	Comandra umbellata (L.) Nutt. ssp. umbellata						1	1					1										1													
	Geocaulon lividum (Richards) Fern.	1	1										1																							
Scrophulariaceae	Limosella aquatica L.																																			
	Veronica peregrina L. ssp. xalapensis (Kunth) Pennell																																			
	Veronica persica Poir.																																			
Smilacaceae	Smilax lasioneura Hook.	1	1																																	
Solanaceae	Capsicum annum L.																																			
	Solanum sp. L.																																			
Tiliaceae	Tilia cordata P. Mill.															1																				
Typhaceae	Typha angustifolia L.	1		1	1	1	1	1			1	1	1	1	1		1	1					1	1	1		1		1		1	1	1	1		
	Typha latifolia L.				1	1	1	1		1		1						1			1			1			1				1		1	1		
Ulmaceae	Ulmus americana L.																																			
	Ulmus pumila L.							1			1																									
Urticaceae	Urtica dioica L. ssp. gracilis (Ait.) Seland							1				1																								
Violaceae	Viola sp. L.																																			
	Viola adunca Sm.																																			
	Viola canadensis L.																			1																
Vitaceae	Parthenocissus quinquefolia (L.) Planch.																						1													

Table A1 (continued). List of species identified at the Fort Whyte Centre (2002 – 2004) and the survey units (numbered columns) in which each species was observed. Refer to the map in Figure 3 (page 17) for the location of survey units.

Family	Species	40	41	42	43	44	45	46	47	48	50	51	52	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	Total
Salicaceae	Populus alba L.																			1															2
	Populus balsamifera L.			1		1					1				1					1															14
	Populus deltoides Bartr. ex Marsh.		1	1		1	1	1							1					1			1								1				19
	Populus deltoides Bartr. ex Marsh. ssp. monilifera (Ait.) Eckenwalder		1																																3
	Populus nigra L.																																		1
	Populus tremuloides Michx.		1	1		1	1	1	1	1	1	1		1	1		1			1											1	1			30
	Salix spp. L.				1	1	1	1			1																									6
	Salix amygdaloides Anderss.		1	1		1																							1							10
	Salix babylonica L.		1																																1
	Salix bebbiana Sarg.			1				1												1															17
	Salix discolor Muhl.					1	1						1							1									1							8
	Salix exigua Nutt.	1	1	1	1	1	1									1			1										1	1						30
	Salix fragilis L.																																		2
	Salix lutea Nutt.	1																																	6
	Salix maccalliana Rowlee						1																												3
	Salix petiolaris Sm.					1							1							1															15
	Salix planifolia Pursh			1						1			1																1							10
	Salix serissima (Bailey) Fern.																																		1
Santalaceae	Comandra umbellata (L.) Nutt. ssp. pallida (A. DC.) Piehl																																		1
	Comandra umbellata (L.) Nutt. ssp. umbellata			1							1																								6
	Geocaulon lividum (Richards.) Fern.																																		3
Scrophulariaceae	Limosella aquatica L.																							1											1
	Veronica peregrina L. ssp. xalapensis (Kunth) Pennell																							1											1
	Veronica persica Poir.																							1											1
Smilacaceae	Smilax lasioneura Hook.			1						1																1					1				6
Solanaceae	Capsicum annum L.																								1										1
	Solanum sp. L.																								1										1
Tiliaceae	Tilia cordata P. Mill.		1																																2
Typhaceae	Typha angustifolia L.												1	1		1			1		1				1			1		1					30
	Typha latifolia L.																													1					14
Ulmaceae	Ulmus americana L.																														1				1
	Ulmus pumila L.																			1															3
Urticaceae	Urtica dioica L. ssp. gracilis (Ait.) Seland																			1															3
Violaceae	Viola sp. L.										1			1																					2
	Viola adunca Sm.						1																												1
	Viola canadensis L.										1																								2
Vitaceae	Parthenocissus quinquefolia (L.) Planch.		1	1																															3